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Status and Constraints of Backyard Poultry Farming in Mizoram

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ABSTRACT

Backyard Poultry farming is a traditional farming practice in Mizoram since time immemorial practiced by Mizo women. The study was carried out to analyze the status and constraints of backyard poultry production amongst the women in Aizawl and Mamit districts of Mizoram, India. A total of 200 women poultry rearers were selected from 10 villages. The study revealed that majority of the respondents were from middle age group, literate, housewives, possessed less than 1 hectare of land and belonged to BPL category, rearing coloured non-descript native birds. Local chickens were reared for dual purpose predominately under free range scavenging system by providing kitchen leftover, insect, worms, crop residues, grass and grains as feed materials. They got chicks by natural hatching at home and used bamboo made brooder for hatching the eggs. They did not practice vaccination and deworming of birds and mortality rate in birds due to Ranikhet disease was the highest, followed by fowl pox, greenish diarhhorea, respiratory problems *etc.* They sold eggs and birds directly to the consumers. The major constraints as revealed in the study were non-availability of improved chicks for rearing, predators and occurrence of diseases.

1. Introduction

Poultry production has an important economic, social and cultural benefit and plays a significant role in family nutrition in the developing countries. The proportional contribution of poultry to the total animal protein production of the world by the year 2020 is believed to increase to 40.00 per cent, the major increase being in the developing world (Delgado *et al.,*1999). Nearly all rural and peri-urban families in the developing world keep household poultry. Rural household poultry is affordable source of animal protein and sources of family income. Poultry is a source of self-reliance for women since, poultry and egg sales are decided by women (Aklilu*.,* 2007) both of which provide women with an immediate income to meet household expenses and sources of food. In India, poultry farming under backyard system is as old as its civilization. Household poultry require limited space, feed and capital investment compared to other domestic animals kept in rural India. Backyard poultry rearing is an important source of alternative/supplementary income to 14.00 per cent rural households in India (Kornell, 2008). Most of them comprise of poorest of the poor and more specifically women. Backyard poultry farming is a traditional farming practice in Mizoram since time immemorial practiced by Mizo women. The Mizo women feed them with home grown feed and housing made of cheap and locally available materials like bamboo, wood *etc.* The total poultry population in Mizoram is 12, 53,129 out of which 770,683 are desi birds (Integrated Sample Survey 2013-14). There is a huge gap between the supply and demand of the poultry meat in Mizoram. Private commercial poultry producers are not able to attend to the needs of consumers of Mizoram. Backyard poultry farming (BYPF) that requires hardly any infrastructure set-up is one of the potent tools for upliftment of the poorest of the poor. Besides income generation, rural backyard poultry farming provide nutritional supplementation in the form of valuable animal protein and also empowers women.

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Lack of understanding of village chicken production system makes it difficult to design and implement poultry based development programme that benefit rural people (Gueye 1997, Pedersen 2002). Hence, present study was carried out to analyze the status and constraints of backyard poultry production amongst the women in Aizawl and Mamit districts of Mizoram.

2. Materials and Methods

The study was undertaken in purposively selected districts of Aizawl and Mamit of Mizoram. These districts have been selected under the project entitled "Sustainable Livelihood Generation for Rural Women through Improved Backyard Poultry Farming" sponsored by Department of Biotechnology, Government of India, New Delhi. From each district, five villages were chosen to select 200 women poultry rearers. Twenty households were identified from each village after discussion with Village Council Presidents, Young Mizo Association and Women organizations. From each village, 20 women poultry rearers were selected based on their attitudes towards poultry farming, willingness to cooperate with the project activities, possessing poultry shed with local birds. Unemployed women below BPL who needed help to generate income for sustaining livelihood were included. A preliminary baseline survey was done among 200 farm women who formed the respondents for the present study. A structured interview schedule was developed for the purpose of base line survey. The data were compiled, tabulated and subjected to appropriate statistical analysis like frequency distribution, percentage and mean.

3. Results and Discussion

A. Socio-personal and economic profile of the respondents

3.1 Age

The respondents are categorized into three age groups, *i.e.* young, middle and old. The majority of the respondents (56.00%) belonged to middle age group followed by the young age (33.50%). Mandal *et al.* (2006) reported that majority of poultry owners (63.75 %) belonged to young age group (less than 32 years), 19.58 per cent were in middle age group (32-47 years) and 16.67 per cent were old (above 47 years). Deka *et al* (2013) reported that majority of the poultry owners (49.00%) belonged to middle age group (25-35 years) while 45.00 per cent belonged to young age group (15-25 years) and 06.00 per cent in old age group (above 35 years). The involvement of young and medium age groups in this sector is encouraging one as these group of people are more motivated to take up improved practices readily than the old age group.

3.2 Education

It can be observed from the Table 1, that majority of the respondents (96.50%) were literate and out of them majority of the respondents (47.00%) had middle level of education followed by primary level (36.00%) and high school and above (12.50%). Education is one of the important factors which accelerates growth and development of any enterprise. Education results in changes in overall behaviour, since, it is the process of imparting or acquiring knowledge and habit through instruction or study. Education is generally believed to have effect on widening the mental horizon of a person and thereby prepares or predisposes a person to be receptive to new ideas. It can be seen from the study that more farmers were concentrated in lower educational qualification or middle literate group. As higher educated ones had more opportunities in earning an occupation, backyard poultry farming might be relegated to the categories of farmers who were either low or middle literate groups in the observed locations. Deka *et al.* (2013) also reported the similar finding.

3.3 Family size/type

The survey reveals that majority of the respondents (57.00%) belong to joint family, whereas, only 43.00 per cent belong to nuclear family. The majority of the respondents (46.50%) have a medium family size and 37.50 per cent of the respondents have small family size which is similar to the findings of Deka *et al.* (2013). In joint family with medium family size, the women folk of the household get sufficient time to take up BYPF as other household works were shared by other members of the family.

3.4 Occupation

The study indicates that majority of the women respondents were housewives helping their male counterpart in agricultural activities (73.50%). Agriculture provides occupational livelihood to these households, whereas, 17.00 per cent of households were engaged as agricultural labourers. Petty business and other works provided occupational livelihood to 09.50 cent households. The findings are in consonance with the findings of Panda and Nanda (2000), Saha (2003) Mandal *et al.* (2006) and Thakur *et al.* (2013). It is evident from the study that respondents possessed poultry as the subsidiary occupation which was an excellent source of income during the lean periods. The families had more than one occupation for their source of income. The earnings from all sources of income were, however, pooled in the family.

3.5 Land holding

Land is an important and crucial scarce factor of production.

Operational land holding indicates the economic well-being of rural household. A perusal of Table 1 points out that 11.50 per cent of the respondents has no operational land. The majority of the respondents (74.50%) possessed less than 1 hectare of land and belonged to marginal farmers' category, while 14.00 per cent of the families have (1-2) hectare of land and fell in the small farmers' category. The findings is in line with the Census report, 2011 that majority of the rural population in Mizoram belonged to small and marginal farmers and landless labourers (Census 2011*)*.

3.6 Family Status

It is observed that an overwhelming percentage of respondents (83.50%) belonged to Below Poverty Line (BPL) category. The remaining 16.50 per cent of families though listed as Above Poverty Line (APL) category still their economic condition was not so good which was almost like BPL category.

3.7 Poultry farming experience

The majority of the respondents (91.00%) had been rearing poultry for more than 5 years. The finding is in conformity with the finding of Mandal *et al.* (2006) and Deka *et al.* (2013). From the result, it can be inferred that the women were rearing poultry as a backyard venture in spite of a general tendency to discontinue backyard poultry farming in a locality whenever heavy losses are incurred due to disease outbreak. This might be due to the fact that BYPF provided income on daily basis through selling of eggs to meet their household expenses.

3.8 Training

Training is an organized activity aimed at imparting knowledge and skill to change the attitudes and behaviours and to enhance the performance of trainees leading to skilled behaviour. All the respondents did not receive any training on BYPF. There was little effort to improve the skill on backyard poultry farming by any organizations.

3.9 Flock size

The women respondents were rearing coloured non-descript native birds (Fig.1). The data presented in Table 1 indicates that majority of the respondents (80.00%) had a medium flock size, followed by 12.50 per cent with a small flock size (less than 5 birds). Only 7.50 per cent respondents have a large flock size. The average flock size was 6.69 birds. Mandal *et al.* (2006) reported that the farmers of Bareilly district of Uttar Pradesh, India had medium flock size (5-8 birds) which supports the present finding. The flock size maintained by the women was comparatively smaller which was due to lack of scavenging area and lack of chicks for rearing. The scavenging areas were small as open rearing and scavenging of animals and poultry were not allowed in the villages by the village council. It has been reported by Singh (2000), that the number of birds to be kept in the backyard system should be decided on the basis of the location of the house with specific reference to the availability of scavenging materials in the vicinity of the house.

3.10 Purpose of rearing chickens

A perusal of the Table 2 indicates that an overwhelming percentage (67.00%) of women was keeping the birds for dual purpose. It is evident from result that the most important reason for backyard poultry rearing by women was for both egg and meat production, which was used primarily for source of income by selling eggs and male birds.

Table 2. Purpose of keeping village chicken

Production	No. of Beneficiaries (n=200)	Percentage
Eggs	54	27.00
Meat	12	06.00
Dual	134	67.00

B. General Information about backyard poultry farming

3.11 System of Rearing/Housing

Response of the women poultry farmers regarding housing and management practices is presented in Table 3. Local chickens were reared predominately under free range scavenging system. During the day time birds freely scavenge in the area around the house and at night time housed in a cage. Poultry houses were predominately made of bamboo materials and were usually two to three feet above the ground. The same finding was reported by Singh and Johari (1990) and Mandal *et al.* (2006) and Deka *et al.* (2013). There was no lighting facility in most of the poultry houses. Lack of proper light affect the egg production as well the growth of the birds.

3.12 Feeding management practices

Kitchen leftover, insect, worms, crop residues, grass and grains were mainly used as feed materials. These finding is similar to the findings of Singh and Johari (1990), Dana (1998) and Saha (2003). There was free access to water but the quality was poor due to unhygienic drinkers and unreliable water sources which are in consonance with the findings of Dana (1998) and Saha (2003).

Fig.1: Non-descript native birds of Mizoram

Table 1. Distribution of respondents according to Socio-economic profile

Variables	Category	No. of beneficiaries (n=200)	Percentage
Age	Young (Up to 35 yrs)	67	33.50
	Middle (36-50 yrs)	112	56.00
	Old (more than 50 yrs)	21	10.50
Education	Illiterate	9	4.50
	Primary	72	36.00
	Middle	94	47.00
	High school and above	25	12.50
Family type	Nuclear	86	43.00
	Joint	114	57.00
Family size	Small (less than5 members)	75	37.50
	Medium (5-8 members)	93	46.50
	Large (more than 8 members)	32	16.00
Occupation	Housewives	147	73.50
	Labourer	34	17.00
	Others	19	09.50
Land holding	Landless	23	11.50
	Marginal	149	74.50
	Small	28	14.00
Family status	BPL	167	83.50
	APL	33	16.50
Poultry farming experiences	Less than 5 years	20	10.00
	5-10 years	180	90.00
Training	Received	0	0.00
	Not Received	200	100.00
Flock size	Small(less than 5 birds)	25	12.50
	Medium(5-10 birds)	160	80.00
	Large (more than 10 birds)	15	7.50

3.13 Source of chicks

The survey reveals that the majority of respondents (75.50 %) got chicks by natural hatching at home and used bamboo made caskets for hatching the eggs. It was provided with sufficient litter and bedding material. Generally 8-10 eggs were set under each broody hen and after 21 days, chicks were hatched out with a hatchability of 60-70 per cent.

3.14 Treatment of birds

The women respondents were not much bothered about diseases aspect of the birds. Table 3 clearly shows that 73.00 per cent of the respondents treated their sick birds by themselves, while 15.50 and 11.50 per cent consulted experienced fellow farmers local expert and veterinary doctor/paravets, respectively. It is very unfortunate to note that no single backyard poultry owner practices vaccination of birds and deworming. Similar finding was also reported by Khandait *et al.* (2011) and Deka *et al.* (2013). This was due to their lack of awareness and non-availability of vaccines and medicines in the locality.

3.15 Diseases of birds

The mortality rate in birds due to Ranikhet disease was the highest, followed by fowl pox, greenish diarhhorea, respiratory problems *etc*. which corresponds with the findings of Dana (1998), Saha (2003) and Mandal *et al.* (2006).The study also showed that the death rates were the highest in chicks followed by growers and adult birds and diseases contributed markedly to high flock mortalities recorded during rainy season. The result is in agreement with report from Mandal *et al.* (2006).

3.16 Productive performance of birds

The average age of hen at first laying was 7.5 months. Deka *et al.* (2003) also reported that the average age at sexual maturity was 7-8 months which is similar to the present finding. The weight of eggs ranges from 35 to 40 gm. The average egg production per hen per year was 72 nos. The average body weight at 12 months of bird was 1.5-2 kg. The average hatchability was found to be 60-70 per cent.

C. Marketing

3.17 . Selling price of eggs and birds

The selling price of eggs ranged from Rs.8-10 per egg, whereas in case of birds the selling price ranged from Rs.300-350 per bird when it attained a body weight of about (1.5-2) kg. It is apparent that desi birds or look alike of desi birds definitely fetch more prices both for eggs as well as meat The price of layer egg was Rs.6-7/- per egg while the price of broiler meat (live weight) was Rs. 160/-per kg and that of the dressed meat per kg was Rs.260/- at the time of investigation .

3.18 . Marketing channel

Analysis of marketing system indicates that marketing system was simple and direct and only in some cases involved the middle men. Good amount of eggs and birds were sold from farmers household directly as they fetched higher prices. The study reveals that 78.00 per cent of the respondents sold their poultry and eggs directly to the consumers while 22.00 per cent of the respondents sold in village market. Generally farmers did not sell their female birds for meat. Similar findings are also reported by Mandal *et al.* (2006) and Deka *et al.* (2013).

D. Constraints

The respondents ranked non-availability of improved chicks for rearing as 1st constraint, followed by predators during scavenging of birds, diseases, lack of inputs on health services *etc.* There was only one hatchery operated by the Government of Mizoram in Aizawl. Most of the chicks mainly broiler chicks came from outside the state. According to the respondents, the marketing of eggs and chicken was not a problem, since the consumers had predilection towards backyard poultry and were even ready to pay higher prices, due to the prevalent belief in society about the high nutritive value of this type of eggs. Dana (1998), Saha (2003), Mandal *et al.* (2006), Deka *et al.* (2013) and Weyuma *et al.* (2015) reported that high incidence of disease was the most important constraint in backyard farming whereas BharathKumar (2015) found that non-availability of chicks as the most important constraint. Setting up of rural hatcheries of capacity 200-300 eggs in a cluster of 3-4 villages is required for continuous supply of chicks. In villages one person preferably young woman should be trained on poultry farming, basic veterinary aids, processing and marketing. The trained person should be assisted to open one Rural Poultry Resource Centre (RPRC) in each village which will be a single window system that will provide all the inputs required for poultry farming like chicks, feeds, vaccines, feed supplements, collection and marketing of eggs, culled birds and processing. The RPRC will also act as information centre for the poultry farmers of the village.

Conclusion

The backyard poultry farming was managed with low input-low output basis by the women to meet the daily

expenses. The most of the respondents were of middle aged and literate. The Government of Mizoram should undertake, extension strategies focusing on skill development of the women in BYPF. The Government should ensure continuous supply of critical inputs like vaccines, quality chicks of dual purpose improved birds like Vanaraja, Giriraja etc. The establishment of Rural Poultry Resource Centre along with rural hatcheries of capacity 200-300 eggs is vital for sustainable development of BYPF in the state.

Table 3. Housing and feeding m practices followed by the respondents

Criteria	No. of beneficiaries (n=200)	Percentage
Housing		
Present	200	100.00
Absent	0	0.00
Permanent	12	6.0
Temporary	188	94.00
Housing material		
Locally available	185	92.50
Standard material	15	7.50
Facility of light		
Yes	75	37.50
No	125	62.50
Feeding System		
Scavenging only	25	12.50
Scavenging + local feed/kitchen waste	172	86.0
Commercial feed supplementation	3	01.50
Source of chicks		
Natural hatching	151	75.50
Other farmers	49	24.50
Treated by		
Self	146	73.00
Local expert / Experienced Fellow Farmers	31	15.50
Veterinarian/Paravets	23	11.50

Table 4 . Constraints faced by the respondents

Constraints	Rank and percentage				
	1st	2nd	3rd	4th	5th
Non-availability of Improved chicks	79	16	5		
Predators	71	21	8	-	-
Diseases	63	26	4	5	-
Health service	54	27	13	6	-
Marketing	-	-	-	26	74

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