

A Study on Broiler Farming Practices Followed by the Farmers in Mizoram

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Abstract

Broiler farming practices followed by the broiler farmers in Mizoram were studied to help R&D professionals take measures to improve the situation. From eight districts in Mizoram two (Aizawl and Kolasib), from each district two blocks and from each block five villages were selected purposively having maximum number of broiler farms, and from each village five farmers engaged in broiler farming were selected randomly to have a total of 100 respondents who were interviewed using a pre-tested semi-structured interview schedule. With a medium flock size (300-1,000, 66%) they purchased feed mainly from the feed dealer (41%) 3,200-16,000 kg feed (57%) spending ₹ 95,000-4,80,000 (53%) in a year they housed their birds intensively (69%). Cleaning the poultry houses by sweeping and washing with plain water 39% buried the dead birds. Treating the birds mainly by themselves (63%) farmers vaccinated their flocks against IBD (47%) and ND (30%) with little concern about the vaccination schedule. With an average ₹ 45 per chick, ₹ 150 per kg live bird and ₹ 38 per kg feed farmers sold their birds at 3 months weighing 3 kg majority (54%) sold their birds in the village. Measures should be taken to make the farmers aware of the need for vaccination on time and the need for adopting a scientific system of rearing. Marketing and veterinary services should be provided to improve the situation.

Keywords: Mizoram, broiler, farming practice, adoption, constraint

1. Introduction

In India, poultry farming has transformed from backyard rearing to commercially organized industry in last five decades. Due to its significant role in socio-economy of rural poor by generating gainful employment, providing food security and fulfilling small cash needs, poultry farming has been accepted as one of the means of rural development. India is the second largest egg producer and third largest broiler-chicken producer in the world (Pratab and Carin, 2015) with 69.73 billion eggs produced at the beginning of the Twelfth Five-Year Plan (Rath et al., 2015). Poultry rearing has been a traditional practice in Mizoram since time unknown. Mizo people rear poultry in the backyard on home grown feed with cheap housing made of locally available materials like woods, bamboo, etc. (Angela, 2014). However, poultry production in Mizoram has taken a new turn in the late eighties with establishment of broiler farms in various parts of the state. Though there is no large scale poultry farm in Mizoram, almost 70% of the farmers keep poultry for subsidiary income. The estimated number of broilers available for consumption in the state during 2012-13 was 847,763 and net meat production was 1,561 t. The per capita availability of broiler meat for the year

2012-13 was estimated at 1.39 kg per year (Rahman, 2015). Various government and non-government organizations and institutions act at different levels to generate and transfer poultry technologies to the farmers. Despite these efforts adoption of recommended technologies in poultry farming has not been as widespread as anticipated. The reasons for poor adoption of poultry farming technologies are yet to be fully understood. Though studies have been conducted in other states of India, studies on broiler farming are rare in Mizoram. Keeping this in view a study was undertaken on the broiler farming practices followed by the farmers in Mizoram to help R&D professionals take measures to improve the situation.

2. Materials and Methods

Out of eight districts in the state, two districts, Aizawl and Kolasib, were selected purposively having maximum number of broiler farms. From each district, two development blocks and from each block five villages were selected purposively based on the number of broiler farms. So, a total of 20 villages were selected. From each village five farmers engaged in broiler farming were selected randomly. So, the total number of respondents for the study was 100, i.e. 50 from each district. For the purpose of data collection a semi-structured interview



schedule was prepared covering all the objectives which was pre-tested. Observation was judiciously done to complement and supplement data collected by interview schedule. Secondary data were collected from the published reports, statistical handbooks, economic survey reports, journals and newspapers, etc. The collected data were compiled, tabulated and analyzed using percentage, frequency and chi-square test using Statistical Package for the Social Sciences (SPSS).

3. Results and Discussion

3.1. Flock size

A look into Table 1 reveals that majority of the respondents (66%) had medium size (300-1,000 birds) followed by small size (25%, 100-300 birds) and large size (9%, 1,000 and above birds) flock.

Mozumdar et al. (2009) found that small broiler farmers (300-2,000 birds) dominated the rural areas of Mymensingh in Bangladesh. Flock size of 300-1,000 birds was very less in comparison to other states of India. It might be due to difficulty in marketing, high cost of feed, lack of transportation, and unavailability of land and space.

Table 1: Flock size owned by the respondents

Category	Frequency and percentage (N=100)	Mean±SD
Small size (100-300)	25	688.45±374.09
Medium size (300-1,000)	66	
Large size (1,000 and above)	9	

$\chi^2=42.172$ at 2 df (Non-significant)

3.2. Feeding

3.2.1. Sources of feed

As shown in Table 2 a good number of respondents (41%) procured feed from the feed dealer only followed by open market only (20%), open market and feed dealer (15%), government source and feed dealer (11%), government source only (7%), and open market and government source (6%).

Table 2: Sources of feed

Sources	Frequency and percentages (N=100)
Open market	20
Feed dealer	41
Government source	7
Open market and feed dealer	15
Open market and government source	6
Government source and feed dealer	11

$\chi^2=0.209$ at 5 df (Non-significant)

Most of the respondents procured feed from the feed dealer and open market only. A few procured from the government source. It might be so because feed from the feed dealer and open market was always available but in case of the government they had to wait for a specific time. Feed companies like Amrit Feed, Samrat Feed and Godrej Feed supplied feed in the study area. Elizabeth (2012) founded that feeds and feed ingredients in Mizoram were obtained from other states hence cost of the feeds became high which accounted for higher market price of broiler.

3.2.2. Feed purchased in a year

Table 3 reveals that majority of the respondents (57%) purchased 3,200-16,000 kg feed followed by 30 percent purchased above 16,000 kg feed and 13 percent purchased less than 3,200 kg feed in the last 12 months.

Most of the farmers purchased feed between 3,200-16,000 kg in one year which was less in comparison to other farmers in other states as most of the farmers were small farmers with less flock size.

Table 3: Feed purchased in the last 12 months

Quantity purchased (kg)	Frequency and percentage (N=100)	Mean±SD
Below 3,200	13	9479.55±
3,200-16,000	57	6327.053
Above 16,000	30	

$\chi^2=52.546$ at 2 df (Non-significant)

3.2.3. Expenditure on feeding in a year

Majority of the respondents (53%) spent ₹ 95,000-4,80,000 for purchasing feed followed by 29% spending more than ₹ 4,80,000 and 18 percent spent less than ₹ 95,000 for purchasing of broiler feeds (Table 4).

Expenditure on feed was higher in comparison to flock size which might be due to higher cost of feed and transportation. Banday and Risam (2001) reported that feed was the single largest item which accounted for about 80 percent of the total cost of poultry enterprise.

Table 4: Expenditure on feed in last 12 months

Expenditure (₹)	Frequency and percentage (N=100)	Mean±SD
Below 95,000	18	286975.76±
95,000-4,80,000	53	192087.48
Above 4,80,000	29	

$\chi^2=63.352$ at 2 df (Non-significant)

3.3. Housing

3.3.1. Housing type

Result reveals that nearly two-third of the respondents (69%)



followed intensive system of housing with elevated floor made of bamboo or wood followed by intensive housing with floor on the ground (31%). However, none of them followed semi-intensive or free range type of housing (Table 5).

According to Rahman (2015), majority of the farmers (92%) reared adult birds in raised slatted floor (platform) made up of bamboo. Most of the broiler houses were intensive type with elevated floor which might be due to the fact that Mizoram was a hilly area and it was difficult to find a plain area for housing. Poultry houses were constructed on the slope of the hill with bamboo or wooden floor. Walls of the house were made of bamboo, wood, plastic, metal sheet, etc. The roof was made of metal sheet. Owing to heavy rainfall it was wise to use elevated floor and metal sheet roof.

Table 5: Type of housing followed by the respondents

Type	Frequency and percentage (N=100)
Intensive with elevated floor	69
Intensive with floor on the ground	31
Semi-intensive	0
Free range	0

$\chi^2=1.169$ at 3 df (Non-significant)

3.3.2. Expenditure on housing

Majority of the respondents (54%) spent ₹ 4,300-12,400, 25 percent spent more than ₹ 12,400 and 21% of the respondents spent less than ₹ 4,300 on broiler housing (Table 6).

Expenditure on housing was less which might be due to the reason that farmers used locally available cheap materials for construction of their poultry houses.

Table 6: Expenditure on housing

Expenditure (₹)	Frequency and percentage (N=100)	Mean±SD
Below 4,300	21	8333.33±
4,300-12,400	54	4062.02
Above 12,400	25	

$\chi^2=54.784$ at 2 df (Non-significant)

3.3.3. Cleaning of the shed

All the respondents disinfected and cleaned their poultry sheds by sweeping followed by washing with plain water, while 85 percent of the respondents used potassium permanganate (KMnO_4) treated water to clean and disinfect the sheds (Table 7).

Bolder and Ledoux (2002) reported that cleaning was basically the management of dirt that could be seen partially to separate and remove this dirt from a surface by means of water and detergent. Most of the farmers swept and washed the shed

with KMnO_4 water might be due to the reason that it was easy to do and due to lack of knowledge of or inconvenience related to other methods of disinfection.

Table 7: Cleaning of the poultry house

Mode of cleaning	Frequency and percentage (N=100)
By sweeping	100
By washing with plain water	100
By washing with KMnO_4 water	85

$\chi^2=0.417$ at 2 df (Non-significant)

3.3.4. Disposal of the dead birds

Table 8 shows that 39% of the respondents buried the dead birds, 23% threw away in the open areas and 38% of the respondents did both as per their convenience.

Adekomaya (2012) also found that approximately 95% of the poultry farmers globally used burial pits to dispose the dead birds. Most of the farmers buried their dead birds under the ground which was one of the conventional methods in the villages. Also a few farmers threw away in the open areas in less populated areas as a means of disposing the dead birds.

Table 8: Disposal of the dead birds

Mode of disposal	Frequency and percentage (N=100)
Thrown away in open areas	23
Buried under the ground	39
Both	38

$\chi^2=0.908$ at 2 df (Non-significant)

3.4. Health care

3.4.1. Treatment

Table 9 shows that 63% of the respondents treated their birds themselves, 25% treated by government veterinarian and 12% treated by private veterinary practitioner when their birds showed symptoms of disease or sickness.

This might be due to the reason that other than the city of Aizawl, veterinary service in the rural area was poor. So, farmers had to treat their birds themselves when they saw disease symptoms.

Table 9: Treatment of birds

Mode of treatment	Frequency and percentage (N=100)
By self	63
By government veterinarian	25
By private veterinary practitioner	12

$\chi^2=2.68$ at 2 df (Non-significant)



3.4.2. Sources of vaccine

Table 10 reveals that majority of the broiler farmers (53%) procured vaccine from the feed dealer, 23% from the open market, while 15% procured from the government staff, 6 percent from the private practitioner and 3% procured vaccine from the government veterinarian.

Most of the farmers procured vaccine from the feed dealer as feed dealer was in close contact with the farmers. Farmers not only procured feed but also procured medicine, vaccine and other inputs required for broiler farming. Poultry feed dealer also organized training for them on broiler farming practices such as how to vaccinate the birds.

Table 10: Sources of vaccine

Source	Frequency and percentage (N=100)
Open market	23
Feed dealer	53
Government staff	15
Private practitioner	6
Government veterinarian	3

$\chi^2=6.491$ at 4 df (Non-significant)

3.4.3. Type of vaccine

Table 11 shows that 47 percent of the respondents used only IBD vaccine followed by only ND vaccine (30%), while 23 percent respondents used both IBD and ND vaccine.

Rahman (2015) reported that 3% of the respondents vaccinated their birds against one disease and the same dewormed their birds while majority (93%) of the farmers used antibiotic when the birds suffered from a disease. ND is given at 7-day age and IBD is given at 2-week age. However, the respondents did not follow this schedule always due to one or the other reason such as availability of vaccine, disease outbreak and lack of knowledge.

Table 11: Vaccines used by the respondents

Vaccine	Frequency and percentage (N=100)
IBD only	47
ND only	30
Both IBD and ND	23

$\chi^2=0.201$ at 2 df (Non-significant)

3.4.4. Expenditure on vaccine and medicine

Majority of the broiler farmers (53%) spent ₹ 450-1,500 for vaccine and medicine followed by 42% spending more than ₹ 1,500 and 5% spent less than ₹ 450 for vaccine and medicine (Table 12).

Nath et al. (2013) reported that feed cost alone contributed 90.95% to the total cost of production followed by chick cost,

Table 12: Expenditure incurred on vaccine and medicine

Expenditure (₹)	Frequency and percentage (N=100)	Mean±SD
Below 450	5	1004.38±
450-1,500	53	543.95
Above 1,500	42	

$\chi^2=64.055$ at 2 df (Non-significant)

medicine cost and vaccine cost in backyard poultry farming in Sikkim. As compared to the number of birds farmers spent less on vaccine and medicine which might be due to the reason that most of the farmers did not vaccinate their birds regularly and some never vaccinated their birds. Medicine (mineral mixture and vitamins) was also given irregularly. They administered medicine mainly when their birds became sick. Another reason might be due to the lack of availability of vaccine and medicine in the rural areas on time.

3.5. Marketing

3.5.1. Price of chick, broiler and feed

The result shows that the average price per chick and per kg live broiler was ₹ 45 and ₹ 150, respectively. Available in 50 kg and 70 kg bag the average price per kg feed was ₹ 38 (Table 13).

In comparison to the neighbouring states (Assam, Manipur and Nagaland) the price of chick, broiler and feed was higher in Mizoram which was mainly due to higher transportation cost. If there was any problem in the transportation it would affect the price. Also prices were unstable throughout the year.

Table 13: Price of chick, broiler and feed

Item	Price range (₹)	Average
Chick	40-50 per chick	45 per chick
Broiler	140-160 per kg live weight	150 per kg live weight
Feed	35-40 per kg	38 per kg

3.5.2. Selling age and weight

Table 14 shows that the average age of birds sold in the market was 3 months and the average weight of birds sold in the market was 3 kg.

Due to unstable market birds were not sold at desirable age and weight. Sometimes birds were sold at 1 kg, sometimes at 5 kg according to the need and convenience of the farmers.

Table 14: Age and weight of birds sold

Item	Range	Average
Age	1-5 months	3 months
Weight	1-5 kg	3 kg

3.5.3. Mode of selling the birds

More than half (54%) of the respondents sold their birds in the

village market, 16% sold to hotel and restaurant, 13% sold in nearby urban areas, 12% sold to dealer as per contract, and 5% sold their birds to the neighbours (Table 15).

Rahman (2015) observed that farmers procured chicks from local market of Aizawl city at ₹ 40-50 per chick and the price of feed was ₹ 30-45 per kg. Sixty percent sold birds at the age above 3 months or when the birds attained 3-4 kg live body weight. Majority (77%) of the respondents sold their birds in wholesale market at ₹ 130-150 and in retail market at ₹ 160-180. Majority sold their birds in the village market mainly due to the availability of marketing place and customers. Some sold to hotel and restaurant mainly due to the demand of more birds. Fluctuation in price of feed, mortality of chicks especially in rainy and winter season and import of broiler from neighbouring state in cheaper price made marketing unreliable.

Table 15: Mode of selling the birds

Mode of selling	Frequency and percentage (N=100)	Average
Village market	54	3 months
Hotel and restaurant	16	3 kg
Dealer as per contract	12	
Nearby urban areas	13	
Neighbours	5	

$\chi^2=11.006$ at 4 df (Non-significant)

4. Conclusion

Farmers should be made aware about the need for vaccination on time as well as the need for adopting a scientific system of rearing. Marketing service should be provided along with the provision of veterinary service. There is a scope for research on extension education service need assessment of the broiler farmers. There is also a scope to study economic, social and environmental sustainability of broiler farming. Also there is a need to conduct research on marketing.

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