

Study the Feed Cost and Feed Conversion Ratio of Broiler Production in Kannauj District of Uttar Pradesh, India

Govind¹, Ramjee Gupta², Deepak Kumar^{1*}, Anita Kumari Meena³ and Navjot Kour⁴

¹Ph.D. Research Scholar, Department of Animal Husbandry and Dairying,

CSA Agriculture and Technology, Kanpur (Uttar Pradesh), India.

²Professor, Department of Animal Husbandry and Dairying,

CSA Agriculture and Technology, Kanpur (Uttar Pradesh), India.

³Ph.D. Research Scholar, Department of Animal Production, MPUAT, Udaipur, Rajasthan, India.

⁴Agriculture supervisor, Govt. of Rajasthan, India.

(Corresponding author: Deepak Kumar*)

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ABSTRACT: Broiler feed cost play vital role in estimating to the variable cost of the broiler production. The feed cost is the major item of variable cost which is required for feeding the broiler birds. Most serious problems of broiler unit owner's were feed cost reported by them in study area of Kannauj district in all season of the year. The feed cost was estimated higher in small unit then medium and large unit of broiler 34.05, 33.80 and 33.50 Rs. per kg of feed, respectively. Generally, feed cost observed approximately 70 percent. Broiler bird intake feed more in winter season as compare to rainy and summer seasons. The broilers were fed by the broiler starter mash up to age of 20 to 21 days followed by broiler finisher in the later stage. The constituents of the feeds were maize grains, polished rice, mineral mixture, fish meal, vitamins etc. Feed conversion ratio is an index of efficiency expressed in terms of kilograms of feed consumed per kilograms of live weight of the broiler. It was seen that the feed conversion ratio at overall level was 1.58, 1.54 and 1.48 in summer, rainy and winter season, respectively. It was seen that feed conversion ratio decline in all size broiler farms during summer, rainy and winter season, respectively. This indicates that the feed conversion efficiency was greater in winter season and therefore winter season is best for broiler production.

Keywords: Feed cost, Feed conversion ratio, Feed efficiency, Broiler, Starter ration and Finisher ration.

INTRODUCTION

The present situation in feeding of poultry is more economical than feeding to other livestock. Using unconventional (low cost) feed ingredients available locally, to formulate the least-cost feeding formulation were found to be reduction in the cost of poultry feeds. Using these feed ingredients in feed formulation require more supplementation of nutrients viz, amino acids, toxin binders, micro nutrients etc. (Thirumalaisamy *et al.*, 2016). There are two major factors for a successful and economic broiler production are fast growth rate and efficient feed conversion ratio. These can be possible through efficient management practices that ensure effective disease prevention and control, coupled with the availability of good quality feed, fed ad libitum and the flock maintained under continuous illumination. The voluntary feed intake by broilers is including proper feed additives to broilers feed in the periods, where they are exposed to different challenges might improve intestinal health. Thus, maintain the feed intake in broilers production. The consumption of dry matter is basically regulated by the poultry need to meet the energy requirement for its various metabolism

activities. The feed consumption varies with environment temperature is widely accepted. Therefore, it is essential to provide feed additives that not only directly improve performance but also reduce stress to GIT of the bird, enhance the integrity of the gut, boosting immune system, reduce bacterial challenges and finally increase nutrient digestibility. Variability in energy required for body weight maintenance that contributes to feed intake, is not accounted for in FCR. The inverse of FCR, weight gain divided by feed intake, referred to as the gain to feed ratio, is occasionally used in the literature and is also measure of efficiency (Dransfield and Sosnicki 1999). Residual feed intake (RFI) was originally proposed by Hess (1941) and used by Koch *et al.* (1963) in beef cattle, and in poultry by Luiting (1990). RFI is defined as the difference between actual and predicted feed intake based on the regression of requirements for production (e.g. egg production, milk, but in this instance weight gain) and body weight maintenance (Van Der Werf, 2004).

The feed conversion ratio (FCR) is the amount of feed ingested by an animal or poultry bird which can convert into one kg of live weight. The FCR which varies

depending on the type of production applied is always a very helpful benchmark to determine the profitability of a farm. FCR can be defined as the amount of feed consumed per unit of weight gain, and is a composite trait of starting and ending body weight and feed intake (Skinner-Noble and Teeter 2003). It is important to know how to improve the feed conversion ratio, how to increase the revenue of their poultry enterprises and how to reduce the feed cost. Feed conversion ratio (FCR) is a measure of how well a flock converts feed intake (feed usage) into live weight. Small changes in FCR at any given feed price will have a substantial impact on financial margins. Solving preventing, FCR problems in a flock requires both good planning and good management. The key to preventing FCR problems is ensuring that throughout the brooding and grow-out period, good management practices are in place so that bird performance is optimized (A.A.S.B. 2011).

Ultimately, significant advantages have been due to genetic selection for feed efficiency. Originally poultry were selected based on body weight achieved, this led to significantly larger birds over time, but as feed costs began to increase it became clear that, to maintain profitability, selection should be widened to include other traits. For the past 40 years feed efficiency has been heavily weighted in breeding objectives for meat producing poultry and as a result, major gains have been made (Emmerson, 1997).

MATERIALS AND METHODS

Study Area. The study was done in Kannauj district of Uttar Pradesh, India. The district is made up of eight development blocks.

Selection of Samples. For the sampling purposes, good and well maintained 56 broiler units of different capacities were selected purposively for meat purpose, which have maintained clean, good records and therefore serve the purpose of obtaining requisite information, for economic analysis and cover the objectives of present study. Selected units then categorized into small, medium and large units according to broiler unit size.

Size of sample. Selected units were categorized into small (up to 1000), medium (1001 to 2000) and large (above 2000) units according to broiler unit size.

Sampling design. For the collecting primary data, field survey technique was employed in the study area. First-hand information pertaining to the behavior and the economic profile of various poultry farm owner's collected from respondents. The information was collected from the owners of broiler units with the help of a schedule specially designed for the purpose.

Method of data collection. For the accomplished to the objectives of the study, data was collected by the survey method pertaining to the year 2020-2021. Two types of data were collected i.e. primary data and secondary data for the objectives purpose in study area. The data was

collected by conducting personal interviews with owners of the broiler units.

Primary data collection. In order to fulfill the objective set, a sample study was undertaken by using a well framed questionnaire that was duly filled by the respondents.

Secondary data collection. The primary data will be supplemented by a spate of secondary sources of data. Secondary data pertaining to the study would be gathered from the records published by various poultry manufacturers. Latest information was gathered from Internet web resources. A number of standard texts were studied to obtain pertinent literature on poultry production.

Analysis of data. The major analytical tools have been employed for the study of tabular analysis with the following mathematical techniques and economic concepts for estimation of feed consumption, and feed conversion ratio of broiler production.

Feed Cost. The feed cost was calculated by considering the quantities of different feeds fed to the birds on the farm and with their respective prices. Transportation charges of feed are also included.

Feed conversion ratio. It is computed by dividing the total quantity of feed consumed by the quantity of live weight of the broiler.

$$FCR = \frac{\text{Total feed consumed by broilers in kg}}{\text{Total live weight of broilers in kg}}$$

RESULTS AND DISCUSSION

The demographic details of feed cost associated in broiler production and feed conversion ratio in broiler farming were analyzed and the results are presented in the following headings.

Cost of feed

Feed cost per broiler. The Table 1 showed the data of feed cost which was estimated according to season wise per broiler feed intake in 6 weeks. The feed cost more in winter season followed by rainy and summer season. In summer season feed cost was estimated Rs.102.24, 98.85 and 98.39 in small, medium and large broiler units respectively, while, average feed cost was point out Rs. 99.83 per broiler in summer season. In rainy season the feed cost was showed Rs. 104.54, 101.74 and 100.94 in small, medium and large broiler units respectively, while, average feed cost was point out Rs. 102.41 per broiler in rainy season. While, in winter the feed cost was find out Rs. 106.70, 104.63 and 103.66 in small, medium and large broiler units respectively, while, average feed cost was point out Rs. 104.94 per broiler in winter season. The annually average feed cost per broiler was observed Rs. 104.54, 101.74 and 100.94 in small, medium and large broiler units respectively, while, average feed cost was point out Rs. 102.40 per broiler. The present findings are in contrary with the findings of Nadeem (1995) Bangalore district of India and closely conformity with the findings of Setiadi *et al.* (2021) in their respective study area.

Table 1: Feed cost per broiler (in Rs.).

Sr. No.	Season	Size of Units			Average
		Small	Medium	Large	
1.	Summer	102.24	98.85	98.39	99.83
2.	Rainy	104.54	101.74	100.94	102.41
3.	Winter	106.70	104.63	103.66	104.94
4.	Average	104.49	101.74	100.99	102.40
5.	C.V.	3.316	5.568	4.630	4.352
6.	S.D.	1.821	2.359	2.152	2.086
7.	S.E. ±1	0.910	1.179	1.075	1.043

Table 2: Feed cost per units (in Rs.).

Sr. No.	Season	Size of Units			Average
		Small	Medium	Large	
1.	Summer	75998.06	177312.19	329430.39	194246.88
2.	Rainy	77707.72	182496.13	337968.32	199390.72
3.	Winter	79313.31	187680.06	347075.45	204089.47
4.	Mean	77673.03	182496.12	338158.05	199242.35
5.	S.D.	1657.89	5183.93	8824.06	4922.97
6.	S.E. ±1	957.18	2992.94	5094.57	2842.27

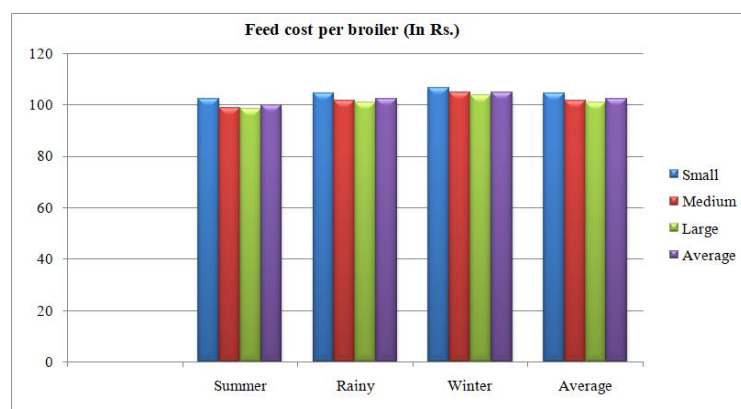


Fig. 1.

Feed cost per units. The Table 2 showed the data of feed cost which was estimated according to season wise per broiler feed intake in 6 weeks. The feed cost more in winter season followed by rainy and summer season. In summer season feed cost was estimated Rs.75998.06, 177312.19 and 329430.39 in small, medium and large broiler units respectively, while, average feed cost was point out Rs. 194246.88 per broiler in summer season. In rainy season the feed cost was showed Rs. 77707.72, 182496.13 and 337968.32 in small, medium and large broiler units respectively, while, average feed cost was point out Rs.199390.72 per broiler in rainy season.

While, in winter the feed cost was find out Rs. 79313.31, 187680.06 and 347075.45 in small, medium and large broiler units respectively, while, average feed cost was point out Rs.204089.47 per broiler in winter season. The annually mean value of feed cost per unit was observed Rs. 77673.03, 182496.12 and 338158.05 in small, medium and large broiler units respectively, while, over all mean value of feed cost was point out Rs.199242.35 per broiler.

Feed conversion ratio of per broiler in different seasons. Feed conversion ratios of different size farms have been worked out and same is presented in Table 3.

Table 3: Feed conversion ratio of per broiler units in different seasons.

Sr. No.	Size of group	Feed conversion ratio			Average
		Summer	Rainy	Winter	
1.	Small	1.57	1.57	1.58	1.57
2.	Medium	1.54	1.53	1.52	1.53
3.	Large	1.47	1.47	1.45	1.46
4.	Mean	1.53	1.52	1.52	1.52
5.	C.V.	0.0026	0.0025	0.0042	0.0030
6.	S.D.	0.051	0.050	0.065	0.055
7.	S.E.±1	0.029	0.029	0.037	0.032

Feed conversion ratio is an index of efficiency expressed in terms of kilograms of feed consumed per kilograms of live weight of the broiler. It was seen that the feed conversion ratio was found out in summer season 1.57, 1.57 and 1.58, while the mean value of summer season was observed 1.57. In rainy season FCR was point out 1.54, 1.53 and 1.52, while the mean value was estimated 1.53. In winter season the feed conversion ratio was observed 1.47, 1.47 and 1.45 in small, medium and large unit of broiler production respectively while, the mean value was estimated 1.46. It was seen that feed conversion ratio decline during summer, rainy and winter season, respectively in all size broiler farms. This indicates that the feed conversion efficiency was greater in winter season and therefore winter season is significant at 5 per cent is best for broiler production. The result are close conformity with the findings of Rahman *et al.* (2016); Singh *et al.* (2016) in their experimental area. The present findings are in agreement with the findings of Kumar (2016) in Chikkaballapur district of Karnataka. Alali *et al.* (2013), also found similar result in their study area.

CONCLUSIONS

The cost of feed per broiler declined with an increase in the size of broiler units. Winter season was the best for production of broilers to a large extent in terms of live weight of broiler, feed conversion ratio. It was seen that feed conversion ratio decline during summer, rainy and winter season respectively in all size broiler farms. This indicates that the feed conversion efficiency was greater in winter season and therefore winter season is best for broiler production.

Suggestions. The feed manufacturing activity through co-operative society may be initiated so as to reduce cost of feed and facilitate timely availability of feed to broiler unit owners.

Rich quality feed should be used which is consist to all essential nutrients, minerals and amino acids which improved to the growth performance and increased to feed conversion efficiency.

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