International Journal of Agriculture Sciences
ISSN: 0975-3710 & E-ISSN: 0975-9107, Volume 12, Issue 20, 2020, pp.-10293-10294.
Available online at https://bioinfopublication.org/pages/jouarchive.php?id=BPJ0000217

Research Article

ECONOMIC BACKYARD POULTRY PRODUCTION THROUGH UNCONVENTIONAL FEED RESOURCES

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Received: October 01, 2020; Revised: October 19, 2020; Accepted: October 20, 2020; Published: October 30, 2020

Abstract: There is an ample opportunity to utilize locally available feeds for economic production of rural poultry since a wide range of alternative feedstuffs is available. Utilization of locally available low-cost feed ingredients associated with agricultural by- products may make a substantial contribution towards better and more economic feeding poultry as the conventional feed ingredients especially energy and protein feedstuffs are costly. Hence, by using unconventional/ locally available feed ingredients to formulate the least feed cost was found to be reduction in the cost of poultry feeds.

Keywords: *Feed cost, Locally available feed ingredients, Mortality, Poultry*

Citation: Michui P., *et al*., (2020) Economic Backyard Poultry Production through Unconventional Feed Resources. International Journal of Agriculture Sciences, ISSN: 0975-3710 & E-ISSN: 0975-9107, Volume 12, Issue 20, pp.- 10293-10294.

Academic Editor / Reviewer: S. M. Chavan

Introduction

Feed is the major input and feed cost is the major constraint in any livestock including poultry production system. The shortage of feed supply and unaffordable cost of concentrates feeds and limited skill of feeding system are the major constraints for rural poultry production. As feed constitutes 60-70 percent of the total cost of production [1], any efforts to reduce the feed cost may lead to a significant reduction in the total cost of production. Demand for conventional feed ingredients for feeding poultry is becoming expensive and incorporation of these feedstuffs in poultry ration has enormously increased the cost of production. High feed cost also results in increased cost of production which translates to higher prices. Attempts to utilize locally available cheap by product may benefit the end users in reducing feed cost which in turn can reduce the total cost of production of meat and egg and making them easily available at cheaper rate in rural areas. Therefore, the search for alternative feed sources has become inevitable to reduce feed cost reported [2]. The main objective of the studied was to access the growth performance, mortality and reduction of feed cost by using locally available feed ingredients.

Material and Methods

Since the availability of quality poultry feed was always a problem that leads to increase feed and production cost for hilly and rural areas like Mon district of Nagaland, KVK Mon conducted low cost feeding practices in poultry diet by utilizing locally available feed ingredients to evaluate the performance in terms of growth and mortality in nine different locations *viz*. Sowa Changle, Aboi, Langmaeng, Ngangching, Aopao, Mohung Changgai, Mohung, Longching, and Angphang villages through On Farm Testing (OFT) programme during the year 2017 to 2019. The study was conducted in a location having an altitude ranging from 480 to 1641 masl. Twenty Self Help Group (s) were selected and provided 27 number each of vaccinated Srinidhi poultry chicks (14 days old). Under this programme Srinidhi birds were reared in intensive condition for initial 4th weeks after which they were allowed to rear in semi-intensive system by utilizing locally available feed ingredients in the ration. Unconventional feed ingredients like cassava both leaves and tubers, leaves of sweet potato, pigweeds and sometimes papaya and chow-chow were cut into pieces, sun dried and mixed with little concentrate and fed to the poultry birds. Locally available feed materials widely incorporated with conventional feeds during the study period were cassava, sweet potato, wheat bran, rice polish, broken rice and grounded maize. The control group was fed on concentrates feeds alone. The feeding trial or testing was conducted for a period of 12 weeks in the farmer's field. Data were recorded on weekly body weight gained, feed consumption, disease incidence and mortality. Feed efficiency was also calculated.

Result and Discussion

The data recorded for various parameters were shown in [Table-1]. The maximum growth rate was observed in 2018 at 12th week of age (1537g) as compared to 2017 (1520g) and 2019 (1512g) although feeding regime remained the same for all the three consecutive study period. This could be attributed to better feeding at the household level. Result indicated that significant depression in body weight gain was observed in chicks fed with locally available resources. However, the feed intake remained uninfluenced. Similar finding was reported [3] in chicks fed diet with total replacement of maize by ragi.

The body weight gain and feed efficiency of control group remain promising. Although the mortality rate was slightly lower for the control group (0.20%) than the treatment group (0.487-0.512 %) statistically the difference was little or no significant was found during the study period. This could be attributed to better feeding and husbandry practices at the household. Similar finding was reported [4]. Cost of feed per kg meat production was lower in chicks fed with locally available feed ingredients. This finding was in agreement with the observations [3] in chick fed diet with 50% maize replaced by ragi (finger millet). However, by reducing nutrient density of the feed, the feed cost per bird will usually fall but performance may be reduced. Significant correlation was observed between body weight gain, mortality, feed conversion efficiency and feed cost reduction as shown in [Table-2].

It may be suggested that locally available feeds ingredients could replace 60-70 percent of conventional feeds or concentrates in the diet of Srinidhi poultry birds without any adverse effect on their body weight gain and feed efficiency. Similar finding was observed that the unconventional feed resources are available lowly and very cheap one that may be included in maximum level without harmful to the

Table-1 *Growth performance evaluation of Srinidhi dual purpose poultry bird*

Particulars	Treatment/ year			Control
	2017	2018	2019	
DOC (g)	35.6 ± 7.62	35.7 ± 9.31	36.2 ±7.64	35.5 ± 7.75
4th weeks (g)	477 ± 7.79	485 ± 3.89	496 ± 1.97	496 ± 1.97
6th weeks (g)	690 ± 3.49	714 ± 3.30	705 ± 3.81	840 ± 2.54
8th weeks (g)	968 ± 1.65	980 ± 6.0	974 ± 2.45	1148 ± 2.72
10th weeks (g)	1211 ± 2.17	1240 ± 2.96	1225 ± 3.29	1869 ± 3.22
12th weeks (g)	1520 ± 3.83	1537 ± 2.07	1512 ± 1.70	2650 ± 2.41
Mortality rate (%)	0.512 ± 0.149	0.487 ± 0.160	0.50 ± 0.106	0.20 ± 0.074
Disease incidence	Nil	Nil	Nil	Nil
Feed conversion ratio/ Feed efficiency ratio	3.4	3.3	3.3	2.6
B.C. ratio	2.3	2.3	2.3	2.3
Feed reduction cost (%)	47.43	47.43	47.42	0

Table-2 *Correlation coefficient of growth, mortality, feed conversion efficiency and feed reduction cost*

	DOC	4th wk	6th wk	8th wk	10th wk	12th wk	Mortality rate	Feed Conversion Efficiency
4th weeks	0.394							
6th weeks	-0.49	0.60						
8th weeks	-0.53	0.56	0.98*					
10th weeks	-0.53	0.55	0.84*	0.97*				
12th weeks	-0.54	0.53	0.78*	0.89*	0.93*			
Mortality rate	0.53	-0.56	-0.78*	-0.87*	-0.99*	-0.98*		
Feed Conversion Efficiency	0.46	-0.62	-0.69	-0.83*	-0.84*	-0.88*	-0.99*	
Feed reduction cost	0.54	-0.54	-0.98*	-0.67	-0.84*	-0.91*	-0.93*	-0.98*

*Significant at 1% level

birds besides, the least cost feed formulation with balanced protein also helps proper nutrient intake and it turn over good output. Therefore, it was concluded from the studied that locally available feed ingredients can reduce feed cost up to 47.42 percent.

Conclusion

Poultry birds are supplemented to wheat bran, rice bran, broken rice, kitchen waste, parts of vegetables and fruits, leaves of green crops and grasses. The greatest potential for efficiently utilizing these feedstuffs will be in traditional family poultry system (scavenging and backyard) and the semi-intensive system. Since there is an opportunity to utilize locally available materials for economic backyard poultry production. In low-input family poultry system, locally available, alternative feedstuffs can be used to supplement the scavenging feed base [5]. Whenever the demand of conventional feed ingredients may go high, we can shift in to unconventional feed ingredients without harmful to the birds to increase the profit of production. Thus, the smallholder backyard poultry production goes eco-friendly because they convert insects and household left overs to valuable cheap and quality animal protein to the family and give suitable economic returns and made them self-sustainable.

Application of research: The greatest potential for efficiently utilizing these stuffs will be in traditional family poultry system (scavenging and backyard) and the semi-intensive system since there is an ample opportunity to utilize locally available feed materials for economic backyard poultry production. Thus, the smallholder backyard poultry production goes eco-friendly because they convert insects and household left overs to valuable cheap and quality animal protein to the family and give suitable economic returns and made them self-sustainable.

Research Category: Poultry research

Acknowledgement / Funding: Authors are thankful to the Director, Agriculture Technology Application Research Institute (ATARI), Zone VII, Umiam, Meghalaya and Sr. Scientist & Head, ICAR-Krishi Vigyan Kendra, Mon, 797603, Nagaland, India

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Research project name or number: Research article under On Farm Testing

Author Contributions: All authors equally contributed

Author statement: All authors read, reviewed, agreed and approved the final manuscript. Note-All authors agreed that- Written informed consent was obtained from all participants prior to publish / enrolment

Study area / Sample Collection: Mid and high-altitude areas of Mon district Nagaland

Cultivar / Variety / Breed name: Srinidhi poultry birds

Conflict of Interest: None declared

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.
Ethical Committee Approval Number: Nil

References

[1] Thirumalaisamy G., Muralidharan J., Senthikumar S., Hema sayee R. and Priyadharsini M. (2016) *International Journal of Science, Environment and Technology*, 5 (6), 3997- 4005.
[2] Swain B.K. (2016) *In Book: Empowering Farmwomen through Livestock and Poultry Intervention*, 186-194.
[3] Swain B.K., Naik P.K. and Singh N.P. (2014) *Technical bulletin No. 47, ICAR - ICAR Research Complex for Goa.*
[4] Ahuja V., Dhawan M., Punjabi M., Maarse L. (2008) *Research Report (document 012) South Asia Pro-Poor Livestock Policy Programme*, 65.
[5] Kellems R.O. and Church D.C. (2010) *Livestock feeds and feeding, Boston, Massachusetts, USA, Prentice Hall.*