

PROFITABILITY OF FEEDING SUN-DRIED POULTRY DROPPING BASED DIETS AS SUPPLEMENT FOR GOATS CONSUMING FINGER MILLET STRAW

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Abstract

The profitability of feeding dried poultry droppings based diet as a supplement in goat production enterprise was analyzed in the present study. The data generated in the study was analyzed using gross margin analysis and profitability ratio. The result of the budgetary analysis showed that the highest total cost of **Rs 855.9/goat** was incurred, the highest total revenue of **Rs 1254.3/goat**, highest gross margin of **Rs 773.24/goat** and highest net farm income of **Rs 713.24/goat** were observed for the supplemented treatment groups (T2- T5). The profitability ratio gave the best benefit-cost ratio of 4.62, a rate of return of 3.62, a gross ratio of 0.22 and an expense structure ratio of 0.12. This suggests that feeding of dried poultry droppings based diet to goats is a profitable enterprise. This present study, therefore, recommends the supplementation of sun-dried poultry dropping based diet at 80 % inclusion level for maximum profitability

Keywords:Economics; goats; sun-dried poultry dropping based diet

1. Introduction

Least cost feeding of livestock is immensely essential for the best productivity. Under productivity of livestock is attributed to the insufficient and exorbitant high costs of feeds (Beigh *et. al*, 2017). Therefore, to reduce feed costs and to increase production the need for proper use of comparatively low cost agricultural and industrial by-products is principally essential for profitable livestock production enterprise (Sontakke *et. al*.2014)

Thus non-conventional feeds can in part fulfill the feed needs, reduce rivalry for food between humans and animals, minimize feed cost, and add to self-sufficiency in nutrients from domestically and readily accessible feed sources (Bello, 2016; Bello and Tsado, 2014; Sontakke *et. al*.2014; Mubi *et al.*, 2008; Aro and Tewe, 2007; Onimisi and Oimage, 2006; Ndubueze *et al.*, 2006; Saleh *et al.*, 2002; Belewu and Adeneye, 1996; Zinn *et al.*, 1996; Ibeawuchi *et al.*, 1993). Sun-dried poultry droppings readily come to mind as one of such non-conventional feed resources. This study was therefore designed to find out how profitable is it to feed sun-dried poultry dropping based diet as supplement to Konkan Kanyal goats consuming finger millet straw.

2. Result and discussions

Cost and Return of Feeding Sun-dried Poultry Dropping based diet as Supplement for Goats:

Table 1 reveals the estimate of cost and returns analysis obtained from feeding sun-dried poultry dropping based diet as supplement for goats using average cost (Fixed and variable cost) and average body weight gain by each of the treatment groups. The average chevon price/kg was lowest (Rs.857.5) in control treatment group (T1) and was highest (Rs.1130.5) in supplemented treatment group (T5) followed closely by (T4) (Rs.1067.5); total revenue was highest in T5 (Rs.1254.30), keenly followed by T4 (Rs.1185.95) and was lowest in T1 (Rs.958.38). The Net farm income in T1 was (-Rs.102.48) but was highest in T5 (Rs.713.24) followed closely by T4 (Rs.652.45) respectively. Gross margin result followed a similar trend as was observed for total revenue and Net farm income in which highest values were recorded for supplemented treatment group T5 (Rs.773.24), followed closely by T4 (Rs.712.45) and least in T1 (Rs.162.48). This present study revealed that feeding dried poultry droppings based diet as a supplement to goats was profitable and it is in agreement with the earlier findings of (Bello, 2016; Jokthan *et al.*, 2013, Anigbogu and Nwagbara, 2013 Fawola and Fajemisin 2011.). The authors reported that the inclusion of poultry litter in the diet of ruminants reduces feed costs and by extension increases farmer's income, therefore, it is a profitable business.

Profitability and Viability Estimate of Feeding Sun-dried Poultry Dropping based diet as Supplement for Goats:

Table 2 reveals the profitability and viability estimate of feeding sun-dried poultry dropping based diet as supplement for goats in the present study. The Benefit-cost ratio ranged from (0.94) in T1 to (4.62) in T5. From the result of this present study supplemented treatment group (T2-T5) has the best benefit-cost ratio (1.60; 1.91; 4.26 and 4.62) and this implies that supplementation of sun-dried poultry dropping based diet in the diet of goat is profitable according to rule of thumb of project evaluation which states that any business with benefit-cost ratio higher than one means is profitable, equals to one means break-even, while less than one indicates loss (Olagunju *et al.*, 2007). The gross ratio ranged from 1.06, in T1 to 0.22 in T5. This implies that in T1, for every Rs.1.00 returns to goat feeding, Rs.1.06 are being spent while for T5 for every Rs.1.00 returns to goat feeding 22 Paise is being spent. The rate of returns ranged from -0.06% in T1 to 3.62% in T5. This shows that for every Rs. 1.00 invested into goat feeding in T1 -0.06 Paise was lost by the farmer and in T5 for every Rs.1.00 invested into goat feeding Rs. 3.62 was gained by the farmer. The expense structure ratio ranged from 0.08 in T1 to 0.12 in T5. The best value was observed in supplemented treatment groups (0.12) which implies that about 12 % of the total cost of production is made up of fixed cost component and this makes goat farming a valuable venture because an increase in production with variable cost also leads to increase in total revenue while the fixed cost remained constant.

Table: 1 Cost and Return of Feeding Sun-dried Poultry Dropping based diet as Supplement to Goats:

S.N.	Treatment	T ₁	T ₂	T ₃	T ₄	T ₅
1	Initial average body weight of goats (kg)	12.45	13.85	13.93	13.38	14.00
2	Average body weight gain (kg/goats)	2.45	2.58	2.67	3.05	3.23
3	Average total feed consumed (kg/goats)	55.43	55.58	59.57	58.72	60.01
4	Initial live weight cost (Rs)	4357.5	4847.5	4875.5	4683	4900
5	Final live weight cost (Rs)	5215	5750.5	5810	5750.5	6030.5
Variable cost						
6	Total cost of feed (Rs)	667.9	326.9	350.5	345.5	353.06
7	Average material cost (Rs)	105	105	105	105	105
8	Depreciation cost of material (10%)	10.5	10.5	10.5	10.5	10.5
9	Misc. Expenditure (drug, water and labour, etc.)	12.5	12.5	12.5	12.5	12.5
10	Total variable cost	795.9	454.9	478.5	473.5	481.06
Fixed cost						
11	Cost of house rent	60.00	60.00	60.00	60.00	60.00
12	Total cost	855.9	514.9	538.5	533.5	541.06
Sales returns						
13	Average chevon price (350Rs/kg)	857.5	903	934.5	1067.5	1130.5
14	Average total manure obtained (kg/goats)	40.35	48.48	42.05	47.38	49.52
15	Total price of manure (2.5 Rs / kg)	100.88	121.2	105.13	118.45	123.8
16	Total returns (Rs)	958.38	1024.2	1039.63	1185.95	1254.3
17	Net profit/goat (Rs)	102.48	509.3	501.13	652.45	713.24
18	Gross margin	162.48	569.3	561.13	712.45	773.24
Rupees-Dollar= Rs.66.23 \$ 1.00						

T₁: had 0% sun-dried poultry dropping based diet (SDPDBD) inclusion; T₂: 20% SDPDBD; T₃: 40% SDPDBD; T₄: 60% SDPDB and T₅: 80% SDPDBD.

Table: 2. Profitability ratios

Treatment	Benefit cost ratio	Expense structure ratio	Gross ratio	Rate of return
	Value	Value	Value	Value
T ₁	0.94	0.08	1.06	-0.06
T ₂	1.60	0.13	0.62	0.60
T ₃	1.91	0.13	0.52	0.91
T ₄	4.26	0.13	0.23	3.26
T ₅	4.62	0.12	0.22	3.62

T₁: had 0% sun-dried poultry dropping based diet (SDPDBD) inclusion; T₂: 20% SDPDBD; T₃: 40% SDPDBD; T₄: 60% SDPDBD and T₅: 80% SDPDBD.

3. Conclusion

This present study showed that goats fed diets with sun-dried poultry droppings incorporated had better weight gain, total revenue, and net farm income, thus it is a profitable venture. Therefore based on the result of this present study, it is recommended that goats supplemented with sun-dried poultry dropping based diet up 80 % inclusion level has the best net profit.

4. References

- Anigbogu, N.M., and Nwagbara, N.N. N. (2013). Performance of West African Dwarf goat Fed maize offal diets supplemented with dry poultry excreta. *Revue d elevageet de med. vet. des pays tropic*, **66**, 51-56.
- Aro, S.O. and Tewe O.O (2007). Performance and Carcass yields of barrows fed dried poultry waste as a replacement for palm Kernel cake. *African J. Biotechnol.* **6**, 487-492.
- Belewu, M.A. and Adeneye J.A. (1996) .The effects of Broiler litter as a protein sources in the performance of Bunaji (White Fulani) bull Calves. *Nigeria J. Anim. Prod.* **23**, 66-71.
- Bello, A. A. (2016). Economics of Feeding sun-dried poultry dropping based diets on growing rams consuming sorghum stover. *Iranian J. Appl Anim. Sci.* **6**, 595-598
- Bello, A.A. and Tsado, .D.N. (2014) Effects of supplementing sorghum (sorghum bicolor L. moench) stover with dried poultry dropping based diet on the performance of growing Yankasa ram. *IOSR J. Agric. Vet. Sci.* **7**, 34-39
- Beigh, Y .A, Ganai, A.M and Ahmad, H.A (2017). Prospects of complete feed system in ruminant feeding: A review. *Veterinary world*, **10**, 424-437.
- Fawola, T.S. and Fajemisin, A.N.(2011). Performance and micro minerals utilization by West African Dwarf ram fed rumen content-poultry droppings mixed diet. In: Proc. 36th Annual Conf. Nig. Soc. Anim. Prod. University of Abuja, Nigeria, 13-1, March 2011, **36**, 533-535
- Ibeawuchi, J.A. Danjuma, D. and Ogutona, .T. (1993).The value of dried poultry waste as protein supplement for growing Borno White goats. *Discor.Innov* **5**, 63 -68.
- Jokthan, G.E; Muhammad, S.A. and Osuhur, C.U. (2013) Effect of cotton seed cake replacement with broiler litter on performance of Yankasa rams fed maize husk basal diets. *FUTA J. Res. Sci.* **1**, 147-155.
- Mubi, A.A., Kibon A. and Mohammed, I.D. (2008). Utilization of Alkali Treated Sorghum Stover supplemented with poultry litter for growing Heifers in the North East Region of Nigeria. *Asian J. Anim. Vet. Adv.* **3**, 183-186.
- Ndubueze, A.I. Uka, chukwu, S.N. Ahamefule, F.O. and Ibeawuchi, J.A. (2006). Milk yield and composition of grazing white Fulani cows fed poultry waste cassava peel based Diets. *Pakistan J. Nutr.* **5**, 436-440.
- Olagunju, F.I; Adesiyan, I.O. and Ezekiel, A.A. (2007) Economic viability of cat fish production in Oyo state, Nigeria. *J. Human Ecol.* **21**, 121-124.
- Onimisi, P.A .and Oimage, J.J. (2006).Evaluation of poultry litter as feedstuff for growing rabbits. *Livestock Res. Rur. Dev.* **18**, 11

- Saleh, H.M., Elwan, K.M., El-fouly, H.A., Ibrahim, I.I., Salam, A.M. and El-Ashry, M.A. (2002). The use of poultry waste as a Dietary Supplement for Ruminants. In: Development and field Evaluation of animal feed supplementation packages. *Proc. final review meeting of an IAEA Technical Co-operation Regional AFRA Project organized by the joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture and held in Cairo, Egypt. 25-29 November, 2000.*
- Sontakke, U., Kale, V., Bose, B and Kumar, M (2014). Non-conventional feeds and agro-industrial by-product: Their scope and future demand for livestock production culled from <https://en.engormix.com/feed-machinery/articles/non-conventional-feeds-agro-t36183.htm> on 6/9/2019
- Zinn, R.A., Baraja, S.R., Montario, M. and Shen, Y.C. (1996). Protein and Energy value of dehydrated poultry excreta in diets for feedlot cattle. *J. Anim. Sci.* **74**, 2331-2335.