

RESEARCH PAPER

Cost and returns of stall fed and grazing methods of sheep and goat rearing in Dharwad district

■ B. Priyanka and C. Murthy

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ABSTRACT

The investigation was carried out to estimate the cost and returns of stall fed and grazing methods of sheep and goat rearing in Dharwad district 2018-19. The multistage random sampling technique was selected for the study. For the study, in Dharwad district 2 taluks namely, Dharwad and Navalgund taluk were purposively selected to throw light on the study. These 2 taluks have highest number of sheep and goat population and stall fed units in the study area. From each taluk, 8 villages and 3 stall fed units were selected for the study. The cost and returns of stall fed and grazing methods of sheep and goat rearing were analysed in tabular analysis. The investment for stall method of sheep and goat rearing is Rs. 24,77,000 and Rs. 3,630 in case of grazing method of sheep and goat rearing. The study reveals that the variable cost, fixed cost and total cost of rearing were highest on stall fed method of sheep and goat rearing, followed by grazing method of sheep and goat rearing. The maximum returns are from the sale of animal followed by sale of manure.

KEY WORDS : Stall fed, Grazing, Water tub, Chaff cutter, Temporary fence, Cost, Returns, Manure, Sale of sheep, Goat, Sale price

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Sheep are multi-reason animals, are raised for their meat, milk, wool, stows away, and skins. Sheep are additionally a prevalent research model and a few makers have created organizations providing animals or different items (for example blood) to bio-science.

Sheep/Goat farming has accordingly stayed in a disregarded state. Relocation and touching practices affect the present status of sheep/goat farming in the nation. Over the most recent couple of decades, the administration strategies of securing woodland zones and not allowing sheep runs to brush to touch have carried monstrous tragedies to the sheep/goat farmers. Sheep/Goat convert inadequate harsh vegetation to meat. Sheep/Goat farming give meat, wool, skin and compost. There is a huge unsatisfied market for sheep in the nation. There is likewise an incredible possibility for fare of sheep particularly to Gulf and Middle East nations.

MEMBERS OF THE RESEARCH FORUM

Correspondence to:

C. Murthy, Department of Agribusiness Management, University of Agricultural Sciences, Dharwad (Karnataka) India
E-mail: cmurthy1966@gmail.com

Authors' affiliations:

B. Priyanka, Department of Agribusiness Management, University of Agricultural Sciences, Dharwad (Karnataka) India

Indian subcontinent is a rich wellspring of different ovine germplasm, and without a doubt, not many nations have such an enormous number of breeds with wide hereditary assorted variety. In India Sheep make an important commitment to the occupation of the monetarily more fragile segments of the general public. Among the domesticated animals proprietors the shepherds are the least fortunate of the parcel. The fare profit from various woolen items and lamb is additionally discernibly adding to the National salary. Sheep skin as cowhide and calfskin items is additionally traded.

The world cattle population accounts for 1365 million, buffalo population accounts for 172 millions, sheep accounts for 1059 and goat population accounts for 790 million. The complete sheep in India is 65.06 million numbers in 2012, declined by about 9.07 per cent over enumeration 2007. The goat population has declined by 3.82 per cent over the past statistics and the all out goat in the nation is 135.17 million numbers in 2012. In India, Andhra Pradesh stands first in sheep population (26.39 million numbers), trailed by Rajasthan (9.08 million numbers) and Karnataka (9.58 million numbers). In goat population, Rajasthan stands first (21.66 million numbers), trailed by Bihar (12.16 million numbers) and Karnataka is in ninth position (4.79 million numbers). In Dharwad district, the total population of sheep is 73,982 and goat 62,120 in the district during the 2012 census.

METHODOLOGY

The multistage random sampling was followed for the selection of taluks, villages, farmers and market intermediaries maintaining sheep and goat. Dharwad district was purposively selected for the study. From Dharwad district, 2 taluks namely, Dharwad and Navalgund taluk were purposively selected to throw light on the study. These 2 taluks have highest number of sheep and goat population and stall fed units in the study area. In Dharwad taluk 8 major villages namely

Aminabhavi, Shivalli, Hebbali, Mansur, Garag, Harobelvadi, Govankoppa and Kallur and in Navalgund taluk 8 major villages namely Morab, Navaladi, Tirlapur, Gudisagar, Ballur, Gummagol, Gobbaragumpi and Alagawadi were selected for the study based on the maximum number of sheep and goat population and from each taluk 3 stall fed units were selected for the study. From each selected village 5 respondents rearing sheep and goat were selected through random sampling technique and from each taluk 3 stall fed units were selected. Thus, the total sample size was 86 respondents from sheep and goat rearing farmers were collected. Similarly, to elicit information about market intermediaries were selected from each taluks 5 village merchants, 5 wholesalers cum commission agent, 5 retailers (butchers) were selected randomly. Thus, the total sample size was 116. The primary data was collected from the sample respondents through personal interview method with pre-tested questionnaire. The primary data was collected from the sheep and goat rearing farmers stall fed units, market intermediaries related to detail of the objectives. The data pertaining to the agricultural year 2018-19.

ANALYSIS AND DISCUSSION

The investment made on stall fed method of sheep and goat rearing is presented in Table 1. The total investment consisted of purchase of sheep and goat, shed construction, chaff cutter and water tubs. The total investment made on these items worked out of Rs. 24,77,000. The major expenditure was on land which accounted for 40.37 per cent followed by 35.95 per cent for purchase of sheep and goat, shed construction by 22.58 per cent, the rest for other items like chaff cutter and water tubs. As the operations and activities in the stall fed method of sheep and goat rearing are more when compared to the grazing method of rearing, the investment is also more. These findings were in conformity with those of Khadda *et al.* (2018).

Sr. No.	Particulars	Unit	Quantity	Unit cost (Rs.)	Total cost (Rs.)
1.	No. of animals	No.	137	6,500	8,90,500
2.	Land	Acre	1	10,00,000	10,00,000
3.	Shed construction	sq.ft	9,000	62	5,59,500
4.	Chaff cutter	No.	1	25,000	25,000
	Water tub	No.	8	250	2,000
	Total				24,77,000

The investment made on grazing method of sheep and goat rearing is presented in Table 2. The total investment consisted of temporary fence and feeding bottles for kids. The total investment made on these items worked out to Rs. 3,630. The major expenditure was on temporary fence which accounted for 94.49 per cent followed by 5.50 per cent for feeding bottles for kids. As the operations and activities in the grazing method of rearing are less when compared to the stall fed method of rearing, the investment is also less.

The detailed information regarding the cost incurred by stall fed method of sheep rearing is presented in Table 3. The costs incurred are divided into variable cost and

fixed cost. The variable cost comprised of expenditure on supplements, feed, fodder, labour, vaccination, and interest on working capital. Among all the variable cost, feed cost was the most important. It is clear from Table 3 that feed cost accounted for Rs. 1,61,190 in 2013-14 and Rs. 6,29,460 in 2018-19 which shows that there is an increase of Rs. 26,880 over the years. Other cost such as veterinary charges, labour, insurance, fodder and miscellaneous increase with Rs. 1,67,500, Rs. 36,000, Rs. 89,650, Rs. 1300 and Rs. 800, respectively over the years. The fixed cost, include land- rental value, shed construction, chaff cutter and water tub and interest on initial value of the sheep unit at 12 per cent was done by

Sr. No.	Particulars	Unit	Quantity	Unit cost (Rs.)	Total cost (Rs.)
1.	Temporary fence	m	98	35	3,430
2.	Feeding bottles for kids	No.	4	50	200
	Total				3,630

Sr. No.	Particulars	Year					
		2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
	No. of animals	385	615	801	853	875	901
A.	Variable cost						
1.	Fodder cultivation cost	6,500	6,800	7,000	7,300	7,500	7,800
2.	Feed cost						
	Male	10,530	51,030	99,900	1,25,100	1,67,400	2,03,580
	Female	1,00,440	1,49,040	2,07,000	2,14,200	2,59,200	2,84,310
	Kids	50,220	74,520	1,03,500	1,07,100	1,29,600	1,41,570
	Total feed cost	1,61,190	2,74,590	4,10,400	4,46,400	5,56,200	6,29,460
3.	Veterinary charges	57,750	92,250	1,60,200	1,70,600	1,75,000	2,25,250
4.	Insurance	26,750	46,250	79,700	87,300	1,00,450	1,16,400
5.	Miscellaneous (Electricity charges, etc.)	3,000	3,000	3,000	3,500	3,500	3,800
6.	Labour wages	1,32,000	1,32,000	1,32,000	1,56,000	1,68,000	1,68,000
	Interest on working capital @ 7%	27,103	38,842	55,461	60,977	70,745	80,550
	Total variable cost	4,14,293	5,93,732	8,47,761	9,32,077	10,81,395	12,31,260
B.	Fixed cost						
1.	Land-rental value	96,000	96,000	1,08,000	1,08,000	1,20,000	1,20,000
2.	Shed construction depreciation charges	15,000	15,000	15,000	15,000	15,000	15,000
3.	Equipments						
	Chaff cutter depreciation charges	1,667	1,667	1,667	1,667	1,667	1,667
	Water tub depreciation charges	1,000	1,000	1,000	1,000	1,000	1,000
	Total depreciation charges	1,13,667	1,13,667	1,25,667	1,25,667	1,37,667	1,37,667
	Interest on fixed capital @ 12%	13,640	13,640	15,080	15,080	16,520	16,520
	Total fixed cost	1,27,307	1,27,307	1,40,747	1,40,747	1,54,187	1,54,187
C.	Total marketing cost	897	2,430	3,816	4,580	5,496	6,875
	Total cost (A+B+C)	5,42,497	7,23,469	9,92,324	10,77,404	12,41,078	13,92,322
	Total cost per animal	1,409.00	1,176.00	1,238.85	1,263.00	1,418.00	1,545.30

accounting the average life span of equipments and shed. From Table 3 it is evident that the total fixed cost worked out of Rs. 1,27,307 in 2013-14 and Rs. 1,54,187 in 2018-19 which shows that there is an increase of Rs. 26,880 over the years. It is clear from Table 3 that feed cost increase by Rs. 26,880 over the years due to the increase in price of feed. Other costs such as veterinary charges, labour, insurance, fodder and miscellaneous increase over the years because of the increase in number of animals, veterinary charges, labour charges, fodder cultivation etc. The total variable cost, fixed cost and marketing cost are found to increase over the years because of the increase in number of sheep. These findings were in conformity with those of Raj Kumawat and Singh (2016).

The detailed information regarding the cost incurred by grazing method of sheep rearing is presented in Table 4. The costs incurred are divided into variable and fixed cost. The variable cost comprised of expenditure on medicine, labour and interest on working capital. Among all the variable costs, labour cost was the most important. It is clear from Table 4 that labour cost accounted for Rs. 2,64,000 in 2013-14 and Rs. 3,36,000 in 2018-19 which shows that there is an increase of Rs. 72,000 over the years. Other cost such as medicine charges shows the increase of Rs. 1,76,200 over the years. The fixed cost, include temporary fence and feeding bottles for kids and interest on initial value of the sheep unit at 12 per cent was done by accounting the average lifespan of temporary fence and feeding bottle for kids. It is

evident that the total fixed cost worked out of Rs. 1,531 in 2013-14 and Rs. 1,531 in 2018-19. It is clear from Table 4 that labour cost and other cost such as medicine charges shows the increase over the years because of increase in labour charges, number of animals and medicine charges. The total variable cost, fixed cost and marketing cost are found to increase over the years because of the increase in number of sheep. These findings were in conformity with those of Balamurugan and Manoharan (2013).

The detailed information regarding the costs incurred by stall fed method of goat rearing is presented in Table 5. The costs incurred are divided into variable and fixed cost. The variable cost comprised of expenditure on supplements, feed, fodder, labour, vaccination, and interest on working capital. Among all the variable costs, feed cost was the most important. It is clear that feed cost accounted for Rs. 1,43,167.5 in 2013-14 and Rs. 6,57,247.5 in 2018-19 which shows that there is an increase of Rs. 5,14,080 over the years. Other costs such as veterinary charges, labour, insurance, fodder and miscellaneous increase with Rs. 1,77,000, Rs. 36,000, Rs. 1,00,250, Rs. 1300 and Rs. 800, respectively over the years. The fixed cost, include land- rental value, shed construction chaff cutter and water tub and interest on initial value of the goat unit at 12 per cent was done by accounting the average life span of equipments and shed. From Table 5 it is evident that the total fixed cost worked out to be Rs. 1,27,307 in 2013-14 and Rs. 1,54,187 in

Sr. No.	Particulars	Year					
		2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
	No. of animals	317	518	674	791	859	895
A.	Variable cost						
1.	Medicinal charges	47,550	77,700	1,01,100	1,58,200	1,71,800	2,23,750
2.	Labour wages	2,64,000	2,64,000	3,12,000	3,12,000	3,36,000	3,36,000
	Interest on working capital @ 7%	21,808.5	23,919	25,557	32,914	35,546	39,182.50
	Total variable cost	3,33,358.5	3,64,919	4,38,657	5,03,114	5,43,346	5,98,932.50
B.	Fixed cost						
1.	Temporary fence	1,167	1,167	1,167	1,167	1,167	1,167
2.	Feeding bottles for kids	200	200	200	200	200	200
	Total depreciation charges	1,367	1,367	1,367	1,367	1,367	1,367
	Interest on fixed capital @ 12%	164	164	164	164	164	164
	Total fixed cost	1,531	1,531	1,531	1,531	1,531	1,531
C.	Total marketing cost	741	1,920	3,330	4,580	6,072	7,850
	Total cost (A+B+C)	3,35,630.5	3,68,370	4,43,518	5,09,225	5,50,949	6,08,313.5
	Total cost per animal	1,058.77	711.13	658.03	643.77	641.38	679.67

2018-19 which shows that there is an increase of Rs. 26,880 over the years. It is clear from Table 5 that feed cost increase by Rs. 5,14,080 over the years due to the increase in prices of feed. Other cost such as veterinary charges, labour, insurance, fodder and miscellaneous increase over the years because of increase in veterinary charges, labour cost, fodder cultivation etc. The total variable cost, fixed cost and marketing cost is found to increase over the years because of the increase in number of goat. These findings were in conformity with those of Singh *et al.* (2011).

The detailed information regarding the cost incurred by grazing method of goat rearing is presented in Table 6. The costs incurred are divided into variable and fixed cost. The variable cost comprised of expenditure on medicine, labour and interest on working capital. Among all the variable costs, labour cost was the most important. It is clear from Table 6 that labour cost accounted for

Rs. 2,64,000 in 2013-14 and Rs. 3,36,000 in 2018-19 which shows that there is an increase of Rs. 72,000 over the years. Other cost such as medicine charges shows the increase of Rs. 1,39,100 over the years. The fixed cost, include temporary fence and feeding bottles for kids and interest on initial value of the goat unit at 12 per cent was done by accounting the average lifespan of temporary fence and feeding bottle for kids. It is evident that the total fixed cost worked out to be Rs. 1,531 in 2013-14 and Rs. 1,531 in 2018-19. It is clear from Table 6 that labour cost accounted for Rs. 2,64,000 in 2013-14 and Rs. 3,36,000 in 2018-19 which shows that there is an increase of Rs. 72,000 over the years. Other cost such as medicine charges shows the increase over the years because of increase in labour cost, number of animals and medicine charges. The total variable cost, fixed cost and marketing cost is found to increase over the years because of the increase in number of goat.

Sr. No.	Particulars	Year					
		2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
	No. of animals	335	552	656	757	835	909
A.	Variable cost						
1.	Fodder cultivation cost	6,500	6,800	7,000	7,300	7,500	7,800
2.	Feed cost-						
	Male	8,910	53,460	1,03,500	1,41,300	2,11,680	2,41,020
	Female	87,480	1,31,220	1,62,000	1,80,000	2,18,160	2,80,800
	Kids	46,777.5	65,407.5	81,000	90,000	1,17,990	1,35,427
	Total feed cost	1,43,167.5	2,49,727.5	3,46,500	4,11,300	5,47,830	6,57,247
3.	Veterinary charges	50,250	82,800	1,31,200	1,51,400	1,67,000	2,27,250
4.	Insurance	23,250	42,300	68,000	81,400	99,620	1,23,500
5.	Miscellaneous (Electricity charges, etc.)	3,000	3,000	3,000	3,500	3,500	3,800
6.	Labour wages	1,32,000	1,32,000	1,32,000	1,56,000	1,68,000	1,68,000
	Interest on working capital @ 7%	25,071	36,164	48,139	56,763	69,541	83,132
	Total variable cost	3,83,238.5	5,52,791.5	7,35,839	8,67,663	10,62,991	12,70,729
B.	Fixed cost						
1.	Land-rental value	96,000	96,000	1,08,000	1,08,000	1,20,000	1,20,000
2.	Shed construction depreciation charges	15,000	15,000	15,000	15,000	15,000	15,000
3.	Equipments						
	Chaff cutter depreciation charges	1,667	1,667	1,667	1,667	1,667	1,667
	Water tub depreciation charges	1,000	1,000	1,000	1,000	1,000	1,000
	Total depreciation charges	1,13,667	1,13,667	1,25,667	1,25,667	1,37,667	1,37,667
	Interest on fixed capital @ 12%	13,640	13,640	15,080	15,080	16,520	16,520
	Total fixed cost	1,27,307	1,27,307	1,40,747	1,40,747	1,54,187	1,54,187
C.	Total marketing cost	810	2,048	2,935.50	3,590	4,668	5,750
	Total cost (A+B+C)	5,11,355	6,82,146	8,79,521	10,12,000	12,21,846	14,30,666
	Total cost per animal	1,526	1,236	1,341	1,337	1,463	1,574

These findings were in conformity with those of Ahmad *et al.* (2015).

The total returns from stall fed method of sheep rearing include the income from sale of sheep and manure. The details of the returns are presented in Table 7. The total returns from the stall fed method of sheep rearing in 2013-14 was Rs. 8,11,843 and Rs. 39,10,516 in 2018-19 which shows the increase of Rs. 30,98,673 over the years. The major income was obtained from the sale of sheep (which includes sale of kids and adults) as the sale price of animal goes on increasing. The average number of sheep sold was 138 in 2013-14 and 550 in 2018-19 which shows the increase of 412 animals

over the years. The next major source of income was from the sale of manure which accounted for Rs. 2,25,843 in 2013-14 and Rs. 6,12,516 in 2018-19 which shows the increase of Rs. 3,86,673 over the years due to increase in nutritive value of manure automatically the sale price of manure also increases. The net returns from the sheep rearing was Rs. 2,69,346 in 2013-14 and Rs. 25,18,194 in 2018-19 which shows the increase of Rs. 22,48,848 over the years due to the increase in sale price of animal, manure and changing preferences of consumer and increase in preference for good quality of meat. The net returns per sheep in 2013-14 were Rs. 1,957.78 and Rs. 4,578 in 2018-19 which shows increase of Rs. 2,626.22

Sr. No.	Particulars	Year					
		2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
	No. of animals	396	631	685	716	749	794
A.	Variable cost						
1.	Medicinal charges	59,400	94,650	1,02,750	1,43,200	1,49,800	1,98,500
2.	Labour wages	2,64,000	2,64,000	2,64,000	3,12,000	3,36,000	3,36,000
	Interest on working capital @ 7%	22,638	25,105.5	25,672.5	31,864	34,006	37,415
	Total variable cost	3,46,038	3,83,755.5	3,92,422.5	4,87,064	5,19,806	5,71,915
B.	Fixed cost						
1.	Temporary fence	1,167	1,167	1,167	1,167	1,167	1,167
2.	Feeding bottles for kids	200	200	200	200	200	200
	Total depreciation charges	1,367	1,367	1,367	1,367	1,367	1,367
	Interest on fixed capital @ 12%	164	164	164	164	164	164
	Total fixed cost	1,531	1,531	1,531	1,531	1,531	1,531
C.	Total marketing cost	1,035	2,616	3,401	3,850	4,728	6,050
	Total cost (A+B+C)	3,48,604	3,87,902.5	3,97,354.5	4,92,445	5,26,065	5,79,496
	Total cost per animal	880.31	614.74	580.07	687.77	702.35	729.84

Sr. No.	Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
	Sale of animals						
1.	Avg. sale price of adult male	-	(47)	(62)	(73)	(97)	(109)
			3,29,000	4,65,000	5,84,000	8,24,500	8,72,000
2.	Avg. sale price of adult female	-	(98)	(116)	(117)	(73)	(121)
			6,37,000	8,12,000	8,77,500	5,84,000	9,07,500
3.	Avg. sale price of male kids	(68)	(103)	(107)	(121)	(138)	(157)
		3,06,000	4,63,500	4,81,500	6,05,000	6,90,000	7,85,000
4.	Avg. sale price of female kids	(70)	(76)	(139)	(147)	(150)	(163)
		2,80,000	3,04,000	5,56,000	6,61,000	6,75,000	7,33,500
	Total sale price of animals	5,86,000	17,33,500	23,14,500	27,27,500	27,73,500	32,98,000
	Sale of manure	2,25,843	3,87,812	5,18,984	5,64,609	5,88,562	6,12,516
	Gross returns	8,11,843	21,21,312	28,33,484	32,92,109	33,62,062	39,10,516
	Net returns	2,69,346	13,97,843	18,41,160	22,14,705	21,20,984	25,18,194
	Net returns per animal	1,951.78	4,314.33	4,342.35	4,842.15	4,630.97	4,578.00

Note: Figures in the parentheses indicate number of animals sold

over the years. These findings are confirmed by the studies made by Prasad *et al.* (2013).

The details of the returns from grazing method of sheep rearing are presented in Table 8. The total returns from grazing method of sheep rearing include the income from sale of sheep and manure. The total returns from the grazing method of sheep rearing in 2013-14 was Rs. 4,29,000 and Rs. 29,89,000 in 2018-19 which shows the increase of Rs. 25,60,000 over the years. The major income was obtained from the sale of sheep (which includes sale of kids and adult ones) due to the increase in sale price of animal. The average number of sheep sold was 114 in 2013-14 and 578 in 2018-19 which shows the increase of 464 sheep over the years. The next major source of income was from the sale of manure which accounted for Rs. 54,000 in 2013-14 and Rs. 1,62,500 in

2018-19 which shows the increase of Rs. 1,08,500 over the years due to increase in nutritive value of manure automatically the sale price of manure also increases. The net returns from the sheep rearing was Rs. 93,369.50 in 2013-14 and Rs. 23,80,686.50 in 2018-19 which shows the increase of Rs. 22,87,317 over the years because of increase in sale price of sheep, manure and changing consumer preferences. The net returns per sheep in 2013-14 were Rs. 819 and Rs. 4,118.83 in 2018-19 which shows the increase of Rs. 3,199.83 over the years. These findings are confirmed by the studies made by Islam *et al.* (2015).

The total returns from stall fed method of goat rearing include the income from sale of goat and manure. The details of the returns are presented in Table 9. The total returns from the stall fed method of goat rearing in

Sr. No.	Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Sale of animals							
1.	Avg. sale price of adult male	-	(15)	(19)	(25)	(37)	(52)
			90,000	1,23,500	1,75,000	2,59,000	3,64,000
2.	Avg. sale price of adult female	-	(71)	(116)	(138)	(152)	(177)
			3,90,500	6,96,000	8,97,000	9,88,000	11,50,500
3.	Avg. sale price of male kids	(66)	(97)	(127)	(156)	(172)	(181)
		2,31,000	3,39,500	4,44,500	6,24,000	6,88,000	7,24,000
4.	Avg. sale price of female kids	(48)	(73)	(108)	(139)	(145)	(168)
		1,44,000	2,19,000	3,24,000	4,86,500	5,07,500	5,88,000
	Total sale price of animals	3,75,000	10,39,000	15,88,000	21,82,500	24,42,500	28,26,500
	Sale price of manure	54,000	90,000	1,17,000	1,44,000	1,53,000	1,62,500
	Gross returns	4,29,000	11,29,000	17,05,000	23,26,500	25,95,500	29,89,000
	Net returns	93,369	7,60,630	12,61,482	18,16,982	20,44,551	23,80,686
	Net returns per animal	819.00	2,971.21	3,409.41	3,967.20	4,040.00	4,118.83

Note: Figures in the parentheses indicate number of animals sold

Sr. No.	Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Sale of animals							
1.	Avg. sale price of adult male	-	(43)	(61)	(93)	(94)	(126)
			3,22,500	4,88,000	7,44,000	7,99,000	11,34,000
2.	Avg. sale price of adult female	-	(81)	(92)	(96)	(111)	(134)
			5,67,000	6,90,000	7,20,000	8,88,000	11,39,000
3.	Avg. sale price of male kids	(50)	(61)	(73)	(85)	(91)	(123)
		2,50,000	3,05,000	4,01,000	4,67,500	5,46,000	7,38,000
4.	Avg. sale price of female kids	(58)	(71)	(83)	(85)	(93)	(128)
		2,61,000	3,19,500	4,15,000	4,25,000	5,11,500	7,04,000
	Total sale price of animals	5,11,000	15,14,000	19,94,000	23,56,500	27,44,500	37,15,000
	Sale price of manure	99,234	1,34,673	2,20,140	2,60,062	2,88,008	3,19,375
	Gross returns	6,10,234	16,48,673	22,14,140	26,16,562	30,32,508	40,34,375
	Net returns	98,879	9,66,526.86	13,34,619	16,04,562	18,10,661	26,03,708
	Net returns per animal	915.54	3,775.49	4,319.15	4,469.53	4,654.65	5,095.31

Note: Figures in the parentheses indicate number of animals sold

2013-14 was Rs. 6,10,234.5 and Rs. 40,34,375 in 2018-19 which shows the increase of Rs. 34,24,140.50 over the years. The major income was obtained from the sale of goat (which includes sale of kids and adults) as the sale price of animal goes on increasing. The average number of goat sold was 108 in 2013-14 and 511 in 2018-19 which shows the increase of 403 goat over the years. The next major source of income was from the sale of manure which accounted for Rs. 99,234.50 in 2013-14 and Rs. 3,19,375 in 2018-19 which shows the increase of Rs. 2,20,140.50 over the years due to increase in nutritive value of manure automatically the sale price of manure also increases. The net returns was Rs. 98,879 in 2013-14 and Rs. 26,03,708.5 in 2018-19 which shows the increase of Rs. 25,04,829.50 over the years due to the increase in sale price of goat, manure and changing preferences of consumer and increase in preference for good quality of meat. The net returns per goat in 2013-14 were Rs. 915.54 and Rs. 5,095.31 in 2018-19 which shows the increase of Rs. 5,170.77 over the years.

The details of the returns from grazing method of goat rearing are presented in Table 10. The total returns from grazing method of goat rearing include the income from sale of goat and manure. The total returns in 2013-

14 was Rs. 5,86,500 and Rs. 28,36,500 in 2018-19 which shows the increase of Rs. 22,50,000 over the years. The major income was obtained from the sale of goat (which includes sale of kids and adults) as the sale price of animal goes on increasing. The average number of goat sold was 138 in 2013-14 and 425 in 2018-19 which shows the increase of 287 goat over the years. The next major source of income was from the sale of manure which accounted for Rs. 72,000 in 2013-14 and Rs. 1,44,000 in 2018-19 which shows the increase of Rs. 72,000 over the years due to increase in nutritive value of manure automatically the sale price of manure also increases. The net returns from the goat rearing was Rs. 2,37,896 in 2013-14 and Rs. 22,57,004 in 2018-19 which shows the increase of Rs. 20,19,108 over the years because of increase in sale price of goat, manure and changing consumer preferences. The net returns per goat were Rs. 1,723.88 in 2013-14 and Rs. 5,310.59 in 2018-19 which shows the increase of Rs. 3,586.71 over the years. These findings are confirmed by the studies made by Mondal *et al.* (2007).

Net present value or worth is the difference between the total returns realized from sheep and goat rearing over the economic life of the project and the costs

Table 10 : Returns from grazing method of goat rearing (Rs./ year)

Sr. No.	Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Sale of animals							
1.	Avg. sale of adult male	-	(45)	(77)	(78)	(65)	(78)
			2,92,500	5,39,000	5,85,000	5,20,000	6,24,000
2.	Avg. sale of adult female	-	(76)	(81)	(95)	(106)	(111)
			4,56,000	5,26,500	6,65,000	7,95,000	8,32,500
3.	Avg. sale of male kids	(63)	(97)	(103)	(100)	(105)	(112)
		2,52,000	3,88,000	4,63,500	5,00,000	5,77,500	6,16,000
4.	Avg. sale of female kids	(75)	(109)	(97)	(112)	(118)	(124)
		2,62,500	3,81,500	3,88,000	5,04,000	5,90,000	6,20,000
	Total sale price of animals	5,14,500	15,18,000	19,17,000	22,54,500	24,82,000	26,92,500
	Sale price of manure	72,000	1,08,000	1,17,000	1,26,000	1,35,000	1,44,000
	Gross returns	5,86,500	16,26,000	20,34,000	23,80,500	26,17,000	28,36,500
	Net returns	2,37,896	12,38,097	16,36,645	18,88,055	20,90,935	22,57,004
	Net returns per animal	1,723.88	3,786.23	4,571.63	4904.00	5,306.94	5,310.59

Note: Figures in the parentheses indicate number of animals sold

Table 11 : Financial feasibility in stall fed method of sheep and goat rearing

Sr. No.	Particulars	Stall fed	
		Sheep	Goat
1.	NPV	40,74,413.75	26,98,015.75
2.	B:C ratio	2.64	2.08
3.	IRR	26.30	23.99
4.	PBP	1.2 Years	1.5 Years

incurred for rearing and maintenance of sheep and goat. It was observed from Table 11 that the net present value of stall fed method of sheep and goat rearing was Rs. 40,74,413.75 and Rs. 26,98,015.75, respectively. The results showed that the Net present value of stall fed method of sheep rearing was found to be highest as compare to the goat rearing. It is mainly due to the easy handling of the sheep and increasing number of sheep. Benefit cost ratio was found to be highest in stall fed method of sheep rearing (2.60) followed by stall fed method of goat (2.08). This implied that, for every one rupee invested in rearing, the net return was Rs. 1.60 and Rs. 1.08 for sheep and goat rearing, respectively. The magnitude of the ratio also indicates the priority assigned for the investment in stall fed method of sheep and goat rearing. However, since the ratio was greater than unity, the investment in stall fed method of sheep and goat rearing will be economically viable. The internal rate of return is found to be highest in stall fed method of sheep rearing (26.30 %) followed by stall fed method of goat rearing (23.99 %). Since in case of sheep and goat, these values of Internal rate of return are considerably higher than the prevailing rate of interest. Hence they are financially feasible. The pay back period was found to be lowest in stall fed method of sheep rearing (1 year 2 months) followed by stall fed method of goat rearing (1 year 5 months). These findings were in conformity with those of Ingle and Deshmukh (2017). Similar work related to the present investigation was also carried out by Baruwa (2013); Hussain *et al.* (2012); Kumar *et al.* (2014) and Uddin *et al.* (2013).

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