ECONOMICS OF FEEDING UNDER VARYING LEVELS OF DRIED DISTILLERS GRAINS IN TELLICHERRY KIDS

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ABSTRACT

A trial was conducted to assess the post weaning growth performance of Tellicherry kids by feeding varying levels of dried distillers grains (DDG) in an organized goat farm, Chennai. Thirty six numbers of early weaned Tellicherry male kids aged around 2 months were randomly selected and allotted to four groups. Each group consisted of nine kids and all animals were reared under similar intensive system of management. The kids were fed with concentrate and roughage in a ratio of 60:40 based on 4 per cent body weight. Pigeon pea (Cajanus cajan) straw was used as a sole source of roughage. The concentrate mixture contained varying levels of dried distillers grains (0, 5, 10 and 15 per cent) and other ingredients. Body weight and body measurements were taken once in fortnight. Economics was calculated on using this DDG. The dry matter intake and feed conversion ratio showed no significant difference between the study groups. The cost per kg weight gain for the diets containing 0, 5, 10 and 15 per cent dried distillers grains was Rs. 191.48, Rs. 176.80, Rs. 155.35 and Rs. 138.95 respectively. In the respective treatment groups, the net return per animal was Rs. 350.11, Rs. 570.78, Rs. 953.51 and Rs. 1327.42 respectively.

Key words: Tellicherry kids, dried distillers grains, economics.

INTRODUCTION

Goats play an important role in the rural economy of India. The goat meat (chevon) is one of the most preferred meat and has huge domestic demand. Distillers grain is an important agro-industrial by-product that results as a byproduct during the manufacture of beer, as extracted residues of malt (generally barley). It is a good source of protein, energy, fiber and minerals and also contains a significant amount of rumen undegradable protein (approximately 55 per cent) which makes it an attractive ingredient to be used in ruminants feeding (Sahin et al., 2013). Dried distillers grains are prepared from wet distillers grain by drying the same to reduce the moisture content up to 10-12 per cent. It has an almost indefinite shelf life either alone or when mixed with other feeds. Transport cost of dried distillers grains is less when compared to wet distillers grains (Lemenager et al., 2012).

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However, the use of dried distillers grains in goat diet is not widespread. Hence, the present experiment was carried out to study the effect of inclusion of dried distillers grains at various levels on the performance and to work out the economics of feeding varying levels of dried distillers grains to Tellicherry kids.

MATERIALS AND METHODS

The study was conducted to assess the effect of feeding dried distillers grains on the performance of Tellicherry goats under intensive system of management. The study was carried out in an organized goat farm at Injambakkam, Kancheepuram district of Tamil Nadu which is located 25 km Southeast of Chennai city. The study was conducted for a period of six months from August 2013 to January 2014. Thirty six weaned Tellicherry male kids aged around 2 months were randomly selected and allotted to four groups and supplemented with varying levels of dried distillers grains. Each group consisted of nine kids.

Group I	**T1 (0% DDG)**	-	Kids were provided with 40% roughage and 60% concentrate which did not contain DDG and was considered as a control group
Group II	**T2 (5% DDG)**	-	Kids were provided with 40% roughage and 60% concentrate which contained 5 per cent DDG
Group III	**T3(10% DDG)**	-	Kids were provided with 40% roughage and 60% concentrate which contained 10 per cent DDG
Group IV	**T4 (15% DDG)**	-	Kids were provided with 40% roughage and 60% concentrate which contained 15 per cent DDG

Feeding Management

All the study groups were fed with a ration consisting of concentrate and roughage in a ratio of 60:40 based on 4 per cent body weight. Pigeon pea (Cajanus cajan) straw was used as a sole source of roughage. The kids were fed with concentrate at the rate of 300g per head per day during 2-4 months of age, 400g per head per day during 4-6 months of age and 550g per head per day during 6-8 months of age. The per cent ingredient composition of control and experimental rations containing graded levels of dried distillers grains are as follows:

Ingredients	Ration 1 (Control)	Ration 2 (5% DDG)	Ration 3 (10% DDG)	Ration 4 (15% DDG)
Maize	44	40.5	37	33.5
Soya bean meal	10	8.5	7	5.5
Dried distillers grains	0	5	10	15
Mung chuni	28	28	28	28
Rice bran	15	15	15	15
Mineral mixture	2	2	2	2
Salt	1	1	1	1
Total	**100**	**100**	**100**	**100**

Economics

To calculate the economics in different groups of kids during the study period, data were collected by direct observation covering all aspects of expenditure on feed, labour, medicine, miscellaneous items and returns from animals, gunny bags and manure and are presented in Table-1. To calculate the economics, animal value at 2 months of age was taken as Rs.180 per kg of live weight.

Table 1

Cost components of various inputs used in feedlot system of management

Sl. No.	Items of Costs	COST			
		GROUP 1	GROUP 2	GROUP 3	GROUP 4
1	Equipment (Rs)	1000	1000	1000	1000
2	Initial value of kid (Rs/kg live weight)	180	180	180	180
3	Concentrate feed (Rs/kg)	20	19.3	18.8	18.2
4	Forage (Rs/kg)	10	10	10	10
5	Labour /day/animal (Rs)	2	2	2	2
6	Health cover				
	Deworming /9 animals/6 months (Rs)	10	10	10	10
	Dipping /9 animals/6 months (Rs)	3	3	3	3
	Other medicines/9 animals/6 months (Rs)	5	5	5	5
7	Water and electricity (Rs/kid)	60	60	60	60
Returns					
8	Sale of live animal (Rs/Kg live weight)	210	210	210	210
9	Gunny bags (Rs/bag)	14	14	14	14
10	Manure (Rs/tonne)	800	800	800	800

RESULTS AND DISCUSSION

Cost and returns of kids rearing fed varying levels of dried distillers grains are furnished in the Table 2.

The cost per kg weight gain for the diets containing 0, 5, 10 and 15 per cent dried distillers grains was Rs. 191.48, Rs. 176.80, Rs. 155.35 and Rs. 138.95 respectively. Hutchens et al. (2012) reported cost per kg weight gain was lowest in kids supplemented with 25 per cent dried distillers grains than non-supplemented group. The present study was in close agreement with this finding. Similarly, cost per kg weight gain was lowest in kids supplemented with 20 per cent dried distillers grains than non-supplemented group (McEachern et al., 2009).

The net return per animal was Rs. 350.11, Rs. 570.78, Rs. 953.51and Rs. 1327.42 for the diets containing 0, 5, 10 and 15 per cent dried distillers grains respectively. Hutchens et al. (2012) analyzed net return per animal was higher in group fed with 20 per cent dried distillers grains over control group. These findings were similar to the present results in Tellicherry goats.

Table – 2

Statement of cost and returns of rearing the Tellicherry kids on varying levels of dried distillers grains

Details of expenditure			Value (Rs)		
		T1 (0% DDG)	T2 (5% DDG)	T3 (10% DDG)	T4 (15% DDG)
A.	**Capital investment**				
1.	Cost of building	14720	14720	14720	14720
2.	Cost of equipment	1000	1000	1000	1000
	Total	**15720**	**15720**	**15720**	**15720**
B.	**Fixed cost**				
1.	Interest on the capital investment @ 15% per annum	1179	1179	1179	1179
2.	Depreciation on building @ 10% per annum	736	736	736	736
3.	Depreciation on equipment @ 10% per annum	75	75	75	75
	Total	**1990**	**1990**	**1990**	**1990**
C.	**Variable cost**				
1.	Cost of animals	14940	15120	14940	14940
2.	Feed				
a.	Concentrate	13386	13152.95	12934.4	12485.2
b.	Roughage	4240	4302	4301	4640
3.	Labour	3024	3024	3024	3024
4.	Medicines				
a.	Deworming cost	540	540	540	540
b.	Dipping cost	54	54	54	54
c.	Other medicines	45	45	45	45
2.	Water and Electricity	540	540	540	540
	Total	**36769**	**36777.95**	**36378.4**	**36268.2**
D.	**Total cost (Fixed cost + Variable cost)**	**38759**	**38767.95**	**38368.4**	**38258.2**
E.	**Returns**				
1.	Through sale of animals	41370	43365	46410	49665
2.	Through sale of gunny bags	140	140	140	140

3.	Through sale of manure	400	400	400	400
	Total	**41910**	**43905**	**46950**	**50205**
	Net returns (Rs.)	3151	5137.05	8581.6	11946.8
	Total weight gain for 9 goats (kg)	114	122.5	138	153.5
	Cost per kg weight gain(Rs.) (based on total feed cost and total weight gain)	191.48	176.80	155.35	138.95
	Net return per animal (Rs.)	350.11	570.78	953.51	1327.42

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