

Adoption of breeding and health management practice for Marwari goat in arid region of Rajasthan

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Abstract

Present study was conducted with aim to identify information on existing breeding and health management practices for goats in Churu district of Rajasthan. The study was based on primary data which were collected from 240 randomly selected farmers scattered in 24 villages of 4 blocks of the district by personal interview method. The analysis of data revealed that Marwari breed of goat was predominantly reared by most (95.0%) of the farmers. Bleating and mounting on other goats was main symptoms of heat detection followed by the majority of goat keepers and natural service was followed for breeding to the goats. Majority of the farmers were used pure breed buck (Marwari) for breeding purpose and about 40 percent kept their own breeding buck. The breeding buck was commonly selected on the basis of physical appearance and ancestral history from their own flock. Majority (91.6%) of goat farmers were considered no repetition in heat/ oestrus as pregnancy confirmation. Breeding record was not maintained by all the goat farmers due to illiteracy and ignorance of its importance. Flock matting and castration of male kids was followed by 83.33 percent and 73.33 percent of goat keepers, respectively. Although cleaning of hind parts of goat after kidding was not adopted by majority of farmers and dispose off placenta properly was not followed by majority (65.42%) of goat farmers. Deworming and control of ectoparasites was followed by 31.67% and 5.0 % of farmers, respectively. Majority (81.67%) of farmers did not adopt vaccination against enterotoxaemia and goat pox. Segregation of sick goats from rest of the flock and proper dispose off carcass was followed by only a quarter of the goat keepers. Majority (64.17%) of the goat keepers call veterinary personnel to treat their sick goats, however 35.83 percent consult with village Gunni. Herd size significantly ($p < 0.01$) associated with most of the health and breeding management practices and large herd size farmers were adopted management practices in better way as compare to small and medium herd size farmers. The adoption of improved breeding and health care practices increased as herd size increased. It was felt that farmers are need to educate about scientific management practice to get higher income from goat farming.

Keywords: Adoption, breeding, health management, herd size, Marwari goats

Introduction

Rajasthan state ranked first with 21.67 million goats and contributing 16.03% in total goat population in the country (Livestock Census, 2012). Goat an important small ruminant playing a vital role in providing food and nutritional security to millions of marginal, small farmers and agricultural labourer (Kumar 2007). Goat rearing is well suited to weaker sections of the society with small land holding (Rohilla and Chand,

2004). Goats are more prolific, short inter kidding period and have capacity to survive and adaptation in wide range of climatic conditions. The goat management practices followed by the goat keepers are differ from region to region (Sabapara et. al. 2010). Adoption of scientific goat management practices enhance profit from this enterprise. Understanding the goat management practices followed by goat keepers in the area is essential to find out strength and weakness of the goat farming which is necessary for finalising

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the suitable intervention in the system for the policy maker as well as for technocrats. Hence, the present study was under taken to know existing breeding and health management practices followed by goat keepers in Churu district of Rajasthan.

Materials and Methods

Present study was conducted in Churu district of Rajasthan with aim to identify the breeding and health management practices adopted by the goat keepers in the district. Multistage random sampling was used for the study. Four blocks namely Sardarshahar, Ratangargh, Sujangargh and Taranagar were selected randomly among the total of 6 blocks of the district. From each selected block six villages were selected randomly. Finally from each of the selected villages, 10 goat farmers selected randomly making a total 240 respondents for the study. Having at least two adult goats was set a minimum criteria for selection of the respondents. Thus a total 240 goat farmers selected for collection of primary data. Selected goat farmers were classified on the basis of herd size viz. small farmer (having up to 5 adult goats) medium farmers (having 6-15 adult goats) and large farmers (having more than 15 goats). A schedule was prepared with the help of a team of experts and data were collected by personal interview method from April 2012 to March 2013. Data were tabulated and statistically analysed with frequency, percentage and Chi-square test was used to assess the association between herd size and management practices to draw the conclusion.

Results and Discussion

Adoption of breeding practices

Breeding practices followed by goat keepers are presented in Table 1. Natural service of breeding was adopted by all the farmers. Artificial insemination was not adopted due to lack of awareness and facilities in the area. Similar findings were also reported by Gurjar et. al. (2007), Tanwar et. al. (2008), Deshpande et. al. (2009), Tailor et al. (2010) and Sakthivel et. al. (2012). Bleating and mounting on other goats as symptoms of heat detection was followed by Majority (90%) of the selected farmers. These findings are comparable to those of Gurjar et. al. (2007), Tanwar et. al. (2008), Deshpande et. al. (2009) and Sakthivel et. al. (2012). Majority (78.33%) of the farmers bred their goats with pure breed buck (Marwari), while remaining (21.67%) bred either with non-descript or whatever buck available during the heat period.

Category wise analysis indicate that majority of small herd size farmers were using non-descriptive buck whereas majority of medium and large herd size farmers bred with Marwari buck to their goats. Nearly half of the selected farmers bred their goats with community buck, whereas 40.0% goat keepers maintained their own breeding buck selected from their herd itself and remaining (8.33%) hired the buck on input basis (concentrate) from other farmers. The own breeding buck mainly maintained by large flock farmers (96.49%), whereas majority of small and medium (79.55 vs 62.59%) farmers used community buck. These findings are in comparable with findings of Gurjar et. al. (2007) and Tanwar et. al. (2008). Marwari goats are predominantly reared by majority (95.42%) goat keepers due to its hardy nature and easy to acclimatize in the harsh climatic conditions as stated by the farmers. The selection of breeding buck was exclusively based on physical appearance of the animals. Similar findings were reported by Sakthivel et. al. (2012). On over all basis flock matting was adopted by majority (83.33%) of the goat keepers when goats are in grazing. However more than half of the small farmers followed hand matting whereas majority of medium and large farmers adopted flock matting. Maintaining of breeding records was not followed due to illiteracy and ignorance of its importance. These findings were in agreement with findings reported by Tailor et. al. (2010), Tanwar et. al. (2012). Most (91.67%) of the respondents followed non-return of heat or absence sign of heat as pregnancy diagnosis criteria, which is simplest and easiest. These findings are similar to Das et. al. (2011). Castration to male kids was followed by majority (73.33%) of goat keepers to fetch higher price. These findings are in conformity to Deshpande et. al. (2009). Category wise analysis showed that castration to male kids was followed by majority of large and medium (71.93 vs 86.33%) goat keepers, whereas majority of small (65.91%) farmers were not adopted. Most (86.67%) of the goat keepers did not wash hind parts of goats after kidding. Majority (65.42%) of farmers dispose off the placenta by throwing in nearby village premises, however 40% of the small goat farmers dispose off it by deep burial.

Adoption of health management practices

Proper sanitation and healthcare practices in the goats reduces the chance of diseases and enhance the profitability from the goat farming. Table 2 depicted that periodically deworming was followed by only 31.67% farmers and nearly half of the large flock size

Table 1: Distribution of farmers based on breeding management practices (n=240)

S.No.	Particulars	Small(44)	Medium(139)	Large(57)	Overall
1	System of breeding				
i	Natural Service	44(100)	139(100)	57(100)	240(100)
ii	Artificial Insemination	0.00	0.00	0.00	0.00
2	Heat detection				
i	Bleating, mounting on other goats	34(77.27)	130(93.53)	52(91.23)	216(90.0)
ii	Urination and wagging of tail	10.0(22.73)	9(6.47)	5(8.77)	24(10.0)
3	Breed of breeding buck				
i	Pure (Marwari)	11(25.0)	123(88.49)	54(94.74)	188(78.33)
ii	Non-descript	33(75.0)	16(11.51)	3(5.26)	52(21.67)
4	Ownership of buck				
i	Owned	1(2.27)	40(28.78)	55(96.49)	96(40.0)
ii	Community	35(79.55)	87(62.59)	2(3.51)	124(51.67)
iii	Hired	8(18.18)	12(8.63)	0(0.0)	20(8.33)
5	Breed of goat reared				
i	Marwari	41(93.18)	133(92.36)	55(96.49)	229(95.42)
ii	Others	4(6.82)	6(4.17)	2(3.51)	11(4.58)
6	Selection criteria of breeding buck				
i	Physical appearance	44(100)	139(100)	57(100)	240(100)
ii	Body weight	0.0	0.0	0.0	0.0
7	System of matting				
i	Flock	12(27.27)	132(94.96)	56 (98.25)	200(83.33)
ii	Pen	8(18.18)	7(5.04)	1(1.75)	16(6.67)
iii	Hand	24(54.55)	0	0	24(10.0)
8	Breeding record maintained				
i	Yes	0.0	0.0	0.0	0.0
ii	No	44(100)	139(100)	57(100)	240(100)
9	Confirmation of pregnancy				
i	By abdominal palpation	10(22.73)	8(5.76)	2(3.51)	20(8.33)
ii	Not return in heat	34(77.27)	131(94.24)	55(96.49)	220(91.67)
10	Castration of male kids				
i	Yes	15(34.09)	120(86.33)	41(71.93)	176(73.33)
ii	No	29(65.91)	19(13.67)	169(28.07)	64(26.67)
11	Washing hind part of goat after kidding				
i	Yes	4(9.09)	18(12.95)	10(17.54)	32(13.33)
ii	No	40(90.91)	121(87.05)	47(82.46)	180(86.67)
12	Dispose of placenta				
i	By deep burial	18(40.91)	45(32.37)	20(35.09)	83(34.58)
ii	Throwing nearby village premises	26(59.09)	94(67.63)	37(64.91)	157(65.42)

Figure in parenthesis is percentage of corresponding herd size

farmers followed deworming in comparison to medium and small flock size farmers. Control of ectoparasites was not adopted by Majority (95.0%) of the farmers among all the flock size. These findings were similar to Deshpande et. al. (2009) and Tailor et. al. (2010), however contradiction with findings of Gurjar et. al. (2008). Majority (81.67%) of farmers did not adopt vaccination against enterotoxaemia and goat pox due to lack of knowledge, however significantly higher percentage of large farmers(31.58%) were vaccinated

to their goats in comparison to other categories. Similar findings were reported by Gokhale et. al. (2002) and Tanwar et. al. (2012). On overall basis the segregation of sick goats from rest of the herd was followed nearly by more than a quarter of goat keepers, whereas adoption in large herd size farmers was significantly higher as their counterpart small and medium flock size farmers. These findings were comparable with findings reported by Tanwar et. al. (2012). Majority (64.17%) of the goat farmers call to Veterinarian to

Table 2: Distribution of farmers based on health management practices (n=240)

S. No.	Particulars	Small(44)	Medium(139)	Large(57)	Overall
1	Deworming				
i	Yes	12(27.27)	35(25.18)	29(50.88)	76(31.67)
ii	No	32(72.73)	104(74.82)	28(49.12)	164(68.33)
2	Control of ectoparasite				
i	Yes	2(4.55)	6(4.32)	4(7.02)	12(5.0)
ii	No	42(94.45)	133(95.68)	53(92.98)	228(95.0)
3	Vaccination				
i	Yes	4(9.09)	22(15.83)	18(31.58)	44(18.33)
ii	No	40(90.91)	117(84.17)	39(68.42)	196(81.67)
4	Segregation of sick goats from rest of the herd				
i	Yes	0(0.0)	42(30.22)	26(45.61)	68(28.33)
ii	No	44(100.0)	97(69.78)	31(54.39)	172(71.67)
5	Treatment of sick animals				
i	By veterinarian	37(84.09)	78(56.12)	39(68.42)	154(64.17)
ii	Local person	7(17.50)	61(43.88)	18(31.58)	86(35.83)
6	Dispose off dead carcass				
i	Handed over to Harijan	38(86.36)	24(17.23)	5(8.77)	67(27.92)
ii	Bury it	0(0.00)	51(36.69)	41(71.93)	92(38.33)
iii	Throw in nearby jungle	6(13.64)	64(46.04)	11(19.30)	81(33.75)

Figure in parenthesis is percentage of corresponding herd size

Table 3: Association of breeding management practices and herd size

S.No.	Breeding practices	d.f	χ^2 calculate	χ^2 tabulated	Results
1	Association between System of breeding	2	0.0	9.210	NS
2	Association between Symptoms of heat detection	2	9.41	9.210	**
3	Association between breed of breeding buck	2	84.90	9.210	**
4	Association between ownership of breeding buck	4	110.76	13.277	**
5	Association between breed of goats reared	2	0.20	9.210	NS
6	Association between selection criteria for buck	2	0.0	9.210	NS
7	Association between system of matting	4	138.74	13.277	**
8	Association between maintenance of breeding records	2	0.0	9.210	NS
9	Association between method of pregnancy confirmation	2	14.84	9.210	**
10	Association between castration of male kids	2	43.53	9.210	**
11	Association between washing of hind parts after kidding	2	1.59	9.210	NS
12	Association between dispose off placenta	2	0.99	9.210	NS

χ^2 = chi-square df= degree of freedom , NS= None significant **= significant at 1 % level

treat the sick goats however 35.83% consult with village Gunn i (local person expert in treatment). The carcass of dead goats buried, handed over to Harijan and thrown nearby village was followed by 38.33, 33.75 and 27.92% farmers respectively. Category wise analysis revealed that majority of large farmers (71.93%) dispose off carcass in scientific manner by deep burial, whereas majority of small flock size farmers (86.36%) handed over to Harijan.

Analysis of association between breeding management and herd size

Significant association was observed between herd size and in six (50%) breeding management practices at 1 % level out of total 12 identified practices (Table 3) followed by the goat keepers namely symptoms of heat detection, type of breeding buck used, ownership of breeding buck, method of matting, pregnancy confirmation method and castration of male

Table 4: Association of health care practices and herd size

S.No.	Health practices	d.f	X ² calculate	X ² tabulated	Results
1	Association between deworming	2	12.81	9.210	**
2	Association between control of ecto- parasites	2	0.65	9.210	NS
3	Association between Vaccination	2	9.76	9.210	**
4	Association between segregation of sick animals from rest of the herd	2	13.57	9.210	**
5	Association between type of expert call for treatment to sick goats	2	12.0	9.210	**
6	Association between methods for dispose off carcass of dead goats	2	115.68	9.210	**

x²= chi-square df= degree of freedom , NS= None significant **= significant at 1 % level

kids, whereas remaining 6 practices viz. system of breeding, breed of goats reared, selection criteria of buck, maintain of breeding record, washing of hind parts after kidding and dispose off placenta was not associated with herd size.

Association between health management practices and herd size

It was observed that five health care practices were associated with herd size at 1 % level of significance out of total six practices followed by the goat keepers in the area (Table 4) viz. deworming, vaccination, segregation of sick animals from rest of the herd, type of experts call for treatment of sick goats and method used for disposed off carcass. It revealed that as herd size increase the adoption of health management practises also increased and better in large herd size as compare to small and medium herd size.

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