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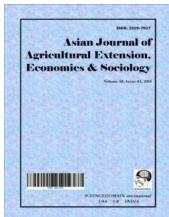
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## **Adoption Level of Scientific Goat Farming Practices among Goat Farmers**

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. Author SKS designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author RS managed the analyses of the study. Authors PK and RV helped in collection of data. All authors read and approved the final manuscript.*

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### **ABSTRACT**

The study was conducted to study the adoption level of goat farmers in scientific goat farming practices. The data was collected through personal interview method with the help of pretested well structured interview schedule from 80 goat farmers in 5 adopted village of Jabalpur district of Madhya Pradesh. The recommended practices were categorized in five i.e. breeding, feeding, health care, management and marketing. The study data shows that majority of farmers adopt practices like allow mating of doe at 18 hours after heat, feed colostrums to kids within one hour, follow sanitary practices for your shelter/standing place, ligate, disinfect the naval cord after birth, perform culling at the farm and market male kids at 6-8 months of age and were found first rank. The practice wise adoption index was calculated and found that marketing practices related to goat farming obtained more adoption index (53.5) followed by feeding practices (46.96), breeding practices (42.6), health care practices (30.72) and management practices (27.25). The overall adoption index of goat rearing was 40.43. The adoption is low in important scientific practices due to lack of exposure. Thus to improve the adoption of goat rearing practices in study area, extension agencies have to arrange training and demonstration programs of improved practices to goat keepers.

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**Keywords:** Adoption level; adoption index; goat farmers; scientific goat farming practices.

## 1. INTRODUCTION

Adoption of goat husbandry practices is an individual phenomenon in all social system [1]. It is widely recognized fact that neither flow of goat husbandry innovations of farming commonly in the sectors in neither repaid nor smooth [2]. Goat is multifunctional animal which acts as an economic backbone of small and agricultural labors of rural India to run their livelihood. It provides benefit to farmers who earn income through selling of resources from goats such as milk, meat, skin, fiber and manure to support their families. 19<sup>th</sup> livestock census [3] revealed that India accounts 135.17 million of goat population among them rural area contributes 129.08 million goats. Goat population accounts for 22.06 per cent of total livestock population in Madhya Pradesh. Goat rearing is a wide spread activity in Madhya Pradesh and is an eminent source of earning a livelihood for landless and small-scale farmers. Households cultivating less than 2.0 hectare land (marginal and small) are the custodian of more than 76 per cent of the total goats in the country (1).

The literacy level of farmers and technical know-how on scientific goat farming practices was poor due to the lack of resource center like SVUs, KVK, NGOs, and state department of animal husbandry. In order to make the goat rearing a profitable enterprise, technologies have been developed by the research institutions. Improved management practices have been recommended by various research and development organizations to improve the goat production, but for adopting of these technologies, the farmers faced many constraints [4]. Implementation of any improved scientific technology in practical field depends on the adoption behavior of the farmers who wants to implements in his own farming practice. Adoption of a specified practice is not the result of single decisions to act but series of actions and thought decision [1]. The proper adoption of these improved practices by the goat farmers will be the only means to hasten further development in this sector. The goat farmers should adopt feeding, breeding, health care, management and marketing practices in scientific manner to get desired benefits. Understanding these facts, suitable strategies will be implemented to improve the goat farming practices. Keeping in view the above facts proposed research work is designed to find out

the adoption level of respondents in goat farming practices.

## 2. METHODOLOGY

The five adopted villages (namely Ghana, Chattarpur, Silua, Padaria and Deori) of Jabalpur district of M.P. were selected for study purpose. All goat owners from each adopted village were selected to study the adoption level of improved goat farming by the respondents. Sample of the respondents in village Ghana, Chattarpur, Silua, Padaria and Deori had 07, 25, 17, 12 and 19 respectively. Thus, the final sample size of 80 goat owners was selected. The data was collected through personal interview method with the help of pretested well structured interview schedule on adoption level of improved goat farming. In which five recommended practices i.e. breeding, feeding, health care, management and marketing were considered to analyze about improved goat rearing technology. In the present study total adoption score was 74. The respondents were asked to give their opinion about adoption/use of these technologies on three point continuum i.e. 'always', 'sometimes' and 'never' adopted and scores of '2', '1' and '0' were allotted respectively. The overall adoption score for each respondent was then calculated by dividing respondents total score with total possible score (adoption index) under each sub areas. The farmers were then grouped into three categories viz., low, medium and high adoption for each sub areas as well as overall using the equal distribution methods and corresponding rank order given to each practices in sub areas.

The adoption index was calculated by following method-

$$\text{Adoption Index} = \frac{\text{Respondents total score}}{\text{Total possible score}} \times 100$$

## 3. RESULTS AND DISCUSSION

### 3.1 Adoption Level in Goat Farming Practices

The adoption level of respondent was presented in Table 1 which indicates that majority of the respondents (81.25%) had low level of adoption followed by medium level (18.75%) of adoption.

To improve the adoption of goat rearing practices in rural area, extension agencies have to arrange

training, awareness and demonstration programme of improved practices to goat keeper [5].

### **3.1.1 Adoption of breeding practices**

Adoption of breeding practices by goat owners can be observed from the Table 2. The finding of the study revealed that allow mating of doe at 18 hours after heat haunted higher score (127) followed by identify the animal in heat (101), breed your does first time at the age of 1 year (79), feed flushing ration 30 days prior to breeding (07), and castration of male (05). The finding of [6] revealed that high adoption was noticed in identifying the animals in heat 90 per cent which is almost similar to the result. The finding of [7] is similar with the present result whose found that use of buck for breeding and get second rank.

### **3.1.2 Adoption of feeding practices**

Adoption of feeding practices for goat was calculated and is presented in Table 3. The result

found that feed colostrums to kids within one hour gather higher score (158) followed by offer 10% of milk of body weight of kids up to the age of 15 days (152), graze your animals for 6-8 hours (139), offer about 150 grams of concentrates along with fodder to the kids of 3-6 months of age (31), feed 3-5 kg green fodder and 1 kg dry fodder per day for adult goats (26), use mineral lick blocks in shades (15) and feed 200-250 gm. of concentrates per day per doe (05). Findings are in consonance with the findings of [8,9] who found that adoption practices in feeding of colostrums to new born kids was 53.3 per cent and 99.29 per cent respectively.

**Table 1. Distribution of respondents according to adoption level (N=80)**

Variable	Category	Respondents	
		F	%
Adoption	Low (0-24)	65	81.25
	Medium (25-49)	15	18.75
	High (50-74)	00	00
Total		80	100

**Table 2. Adoption of breeding practices of goats**

S. no.	Breeding practices	Adoption			Total score	Rank order
		Always	Sometime	Never		
1.	Castration of male	00	05	75	05	VI
2.	Identify the animal in heat	25	51	04	101	II
3.	Verify the pregnancy	10	59	11	79	IV
4.	Breed your does first time at the age of 1 year	22	46	12	90	III
5.	Allow mating of doe at 18 hours after heat	54	19	07	127	I
6.	Feed flushing ration 30 days prior to breeding	01	05	74	07	V

**Table 3. Adoption of feeding practices of goats**

S. no.	Feeding practices	Adoption			Total score	Rank order
		Always	Sometime	Never		
1.	Feed colostrums to kids within one hour	79	00	01	158	I
2.	Offer 10% of milk of body weight of kids upto the age of 15 days	74	04	00	152	II
3.	Offer about 150 grams of concentrates along with fodder to the kids of 3-6 months of age	09	13	58	31	IV
4.	Feed 3-5 kg green fodder and 1 kg dry fodder per day for adult goats	08	10	62	26	V
5.	Feed 200-250 gm. of concentrates per day per doe	01	03	74	05	VII
6.	Use mineral lick blocks in shades	04	07	69	15	VI
7.	Graze your animals for 6-8 hours	61	17	02	139	III

### **3.1.3 Adoption of health care practices**

Adoption of health care practices by goat owners can be observed from the Table 4. The presented data reveals that both practices i.e. follow sanitary practices for your shelter/standing place and ligate, disinfect the naval cord after birth possessed higher score (72) followed by consult the veterinarian for the treatment of sick goats (61), isolate the sick animals from the healthy animals (50), deworming of goat (28), and vaccinate your animals against contagious diseases (14). The similar result was also reported by [10] who found that adoption of vaccination and deworming were 3.57 per cent and 17.14 per cent, respectively.

### **3.1.4 Adoption of management practices**

Adoption of management practices by goat owners can be observed from the Table 5. The presented data reveals that Perform culling at the farm possessed higher score (58) followed by provide appropriate housing facilities to your animals (46), provide adequate rest to doe after the parturition (42), keep kids separate from their dams after 3 months of age (25) and practice flushing at the farm (21). Goats are culled by the farmers for multiple reasons, but the primary

reason for culling was poor health and secondary was improper body weight of goats.

### **3.1.5 Adoption of marketing practices**

Adoption of marketing practices by goat owners can be observed from the Table 6. The presented data reveals that Market male kids at 6-8 months of age possessed higher score (144) followed by Market buck kids at 22 kg body weight (137), Sell your animals direct to butchers (100), Sell your animals at local markets (30) and Sell your animals in organized market (17). [11,12] found that majority of farmers sold their goats at the age of 4-6 months in village markets to meet the family needs.

### **3.1.6 Overall adoption of goat farming practices (Adoption Index)**

Adoption index of goat farming practices by goat owners can be observed from the Table 7. The presented data reveals that marketing practices obtained more adoption index (53.50) followed by feeding practices (46.96), breeding practices (42.60), health care practices (30.72) and management practices (27.25). [13] revealed that more than half of the respondents possessed medium level of adoption about goat production

**Table 4. Adoption of health care practices of goats**

S. no.	Health care practices	Adoption			Total score	Rank order
		Always	Sometime	Never		
1.	Deworming of goat	06	16	58	28	IV
2.	Isolate the sick animals from the healthy animals	10	30	40	50	III
3.	Consult the veterinarian for the treatment of sick goats	11	39	30	61	II
4.	Vaccinate your animals against contagious diseases	04	06	70	14	V
5.	Follow sanitary practices for your shelter/standing place	10	52	18	72	I
6.	Ligate, disinfect the naval cord after birth	13	46	21	72	I

**Table 5. Adoption of management practices of goats**

S. no.	Management practices	Adoption			Total score	Rank order
		Always	Sometime	Never		
1.	Practice flushing at the farm	02	17	61	21	V
2.	Perform culling at the farm	18	32	30	68	I
3.	Provide adequate rest to doe after the parturition	03	36	41	42	III
4.	You provide appropriate housing facilities to your animals	10	42	26	62	II
5.	Keep kids separate from their dams after 3 months of age	04	17	59	25	IV

**Table 6. Adoption of marketing practice of goats**

S. no.	Marketing practices	Adoption			Total score	Rank order
		Always	Sometime	Never		
1.	Market male kids at 6-8 months of age	68	08	04	144	I
2.	Market buck kids at 22 kg body weight	62	13	05	137	II
3.	Sell your animals in organized market	02	13	65	17	V
4.	Sell your animals direct to butchers	29	42	09	100	III
5.	Sell your animals at local markets	11	08	61	30	IV

**Table 7. Overall adoption of goat farming practices**

Goat farming practice	Maximum possible score	Obtained score	Adoption index
Breeding practices	960	409	42.60
Feeding practices	1120	526	46.96
Health care practices	960	295	30.72
Management practices	800	218	27.25
Marketing practices	800	428	53.50
<b>Overall Adoption</b>	<b>4640</b>	<b>1876</b>	<b>40.43</b>

practices. [7] also reported that adoption index of feeding practices for goat (45.48) and health care practices of goat (32.55). The result was line with finding of [1] revealed that overall adoption of goat keepers towards recommended goat rearing practices was 50.95 per cent. [6] were also found that goat keepers were poor in adopting health care hygiene. Finding of [5] is similar who stated that adoption index of goat practices in breeding and health care was 49.1 and 34.2 per cent respectively, and the overall adoption index for improved practices by goat keepers was 39.33 per cent.

#### 4. CONCLUSION

Results indicated that more than half of the respondents possessed low level of adoption. They had higher adoption about identify the animal in heat, feed colostrums to kids within one hour, disinfect the naval cord after birth and market male kids at 6-8 months of age. The overall extent of adoption index was 40.43 per cent which indicated poor adoption of improved goat rearing practices. The adoption is low in important scientific practices due to lack of exposure. Thus to improve the adoption of goat rearing practices in study area, extension agencies have to arrange training and demonstration programs of improved practices to goat keepers. Awareness has to be created to raise fodder trees around the houses and bunds to avoid green fodder shortage. Marketing by collective barraging methods and formation of farmer interest groups will enhance the profit margin of the goat farmers.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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