

Original Research Article

Preferences, Suggestions and Constraints Faced by Badri Cattle Owners While Rearing Badri Cattle in Hills of Uttarakhand

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ABSTRACT

The present study was carried out to analyse the preferences, suggestions and constraints faced by the Badri cattle owners in Almora and Pauri Garhwal district of Uttarakhand. This study was conducted in 12 villages from 4 blocks of Almora and Pauri Garhwal district by personally interviewing 120 Badri cattle owners through semi structured interview schedule. Here, majority of the respondents ranked preferences in rearing Badri cattle as religious importance (MoS; 3.00, Rank I), better adaptability in hilly region of Uttarakhand (MoS; 2.91, Rank II), disease resistance (MoS; 2.81, Rank III), medicinal properties of milk and urine (MoS; 2.70, Rank IV), manure (MoS; 2.55, Rank V), livelihood generation (MoS; 2.22, Rank VI), docile temperament (MoS; 2.19, Rank VII), less labour and input required for its maintenance (MoS; 2.11, Rank VIII), preference of taste of milk of Badri cattle above other breeds of cattle like Jersey, Sahiwal etc. (MoS; 2.02, Rank IX), better feed conversion efficiency (MoS; 1.82, Rank X), easily available in local market (MoS; 1.68, Rank XI) and draught power (MoS; 1.27, Rank XII). Majority of the respondents (90.00%) faced constraints in rearing Badri cattle and felt lack of government initiative as the biggest constraint (MoS; 2.66, Rank I) followed by poor economic condition (MoS; 2.49, Rank II), high cost of feeding and lack of nutritious feed and fodder (MoS; 2.47, Rank III), uncertain rainfall and decrease in agriculture activities (MoS; 2.34, Rank IV), migration and unemployment (MoS; 2.29, Rank V), limited use of bull throughout the year (MoS; 2.18, Rank VI), low milk production (MoS; 2.08, Rank VII), no facility for disposal after its productive life is over (MoS; 1.94, Rank VIII). Farmers suggestions for promotion of cattle were better availability of feed and nutrition for Badri cattle, appreciation/ incentives for Badri cattle owners and development of special programmes specifically for Badri cattle, followed by providing chaff cutter, organizing motivational camps, provide shed, provide loan, insurance and good quality bulls. The present study concluded that government should take initiatives to increase employment opportunities in study area, improve marketing facility, provide nutritious feed and fodder and stop migration to promote Badri cattle rearing.

Keywords

Constraints, Preferences, Suggestions, Badri cattle owners, Almora district, Pauri Garhwal district

Introduction

Cow is an integral part of Indian culture since times immemorial as it has religious importance and is considered as motherly

figure. Indigenous bovine breeds of India are robust and possess the genetic potential to play a crucial role in the national

economy (Annual report.2016-17). The livestock statistics of the indigenous cattle population shows an alarming mind state of the cattle keepers who are switching over to cross bred or exotic cattle because of better production performance as compared to indigenous cattle. The indigenous cattle population is showing a decreased population growth and a decrease of 8.49 percent from previous census is recorded (BAHS-2012). Although India is the 2nd largest cow's milk producer, accounting for 9.5 percent of world production but has 15.06 percent of world cattle population (dairy.ahdb.org.uk) among which 80% are indigenous, most of which (80%) are non-descript (dahd.nic.in) and has very low milk production i.e 3.41 & 2.16 kg/ day /animal by indigenous and non-descript cattle respectively (GoI, 2016) (pib.nic.in). But indigenous cattle have several advantages over crossbred cattle and is an important part of our cultural heritage so needed to be preserved. Government has also started several programmes like Rashtriya gokul mission, National Kamdhenu Breeding centre, Central herd registration scheme, National dairy plane to conserve the indigenous cattle. The indigenous cattle of Uttarakhand has become the first certified cattle breed of Uttarakhand after NBAGR included it as Badri breed (Accession number INDIA_ CATTLE_ 2400_BADRI_ 03040) amongst the nine newly registered breed on 21st June 2016 making a total of 40 indigenous cattle breed (ICAR-NBAGR). The breed is small in size, weighing between 200-250 kg, having long legs and varied body colors – black, brown, red, white or grey. Hooves and muzzle are black or brown in color. Hump prominent. Udder is small in size, tucked up with the body. These are well adapted to the hilly terrain and climatic conditions, comparatively more resistant to diseases (Pundir *et al.*, 2014) and can play significant role in development of

Uttarakhand as a real organic state (Banga *et al.*, 2005). The similar trend of population is also noticed in the study area with a decreasing population growth of 20.43 percent from previous census so it has become very important to conserve the newly registered Badri cattle of Uttarakhand and analyse farmers' view about the breed which will help in formulation and improvement of policies for breed conservation and therefore the present study was taken up with the specific objective to identify the preferences, suggestions and constraints faced by Badri cattle owners in rearing Badri cattle.

Materials and Methods

Locale of the study and sampling procedure:

The study was purposively conducted in hills of Uttarakhand as Badri cattle has become first certified cattle breed of the state. Among all the districts two highly cattle populated districted from the Garhwal and Kumaun commissioneries i.e Pauri Garhwal and Almora were selected purposively for the study. The population of indigenous cattle has its highest proportion present in Pauri Garhwal (17.80% i.e 2, 69,994) followed by Almora (11.5% i.e 197326) district (19th Livestock Census District Wise Report 2012 www.dahd.nic.in). From each district, two blocks were selected (Almora district Lamgara and Bhikyasane block and in Pauri Garhwal district Jaiharikhal and Duggada block) for the study and from each block three villages were selected for the study making a total of 12 villages. Selection of blocks and villages was done randomly. For the study, 10 respondents from each village i.e 60 respondents from each district making a total of 120 respondents having two Badri cattle with a minimum of two years of experience were selected randomly.

Tools and techniques of data collection: The basic instrument used for the study was the interview schedule. The questions were related to different preferences, suggestions and constraints faced by the farmers while rearing Badri cattle. For preferences and constraints schedule was developed containing 12 and 14 statement respectively with four point continuum and opinion were noted as most serious, serious, least serious and not serious with their respective scores of 3, 2, 1 and 0 and finally mean obtained score for each indicator was calculated by using the formula

$$\text{MoS} = \frac{\sum_{i=1}^n \text{Total Score}_i}{n}$$

Where n= number of respondents

For suggestions eight closed ended question with yes or no option were asked to respondents and their response were documented.

Results and Discussion

Preferences are the favourable traits of Badri cattle for which the respondents are rearing the cattle. Table 1 reveals the preferences as perceived by Badri cattle owners in rearing Badri cattle. The most preferred trait of Badri cattle in pooled responses is its religious importance (MoS; 3.00, Rank I) followed by its better adaptability in hilly region of Uttarakhand (MoS; 2.91, Rank II), disease resistance (MoS; 2.81, Rank III), medicinal properties of milk and urine (MoS; 2.70, Rank IV), manure (MoS; 2.55, Rank V), livelihood generation (MoS; 2.22, Rank VI), docile temperament (MoS; 2.19, Rank VII), less labour and input required for its maintenance (MoS; 2.11, Rank VIII),

preference of taste of milk of Badri cattle above other breeds of cattle like Jersey, Sahiwal etc. (MoS; 2.02, Rank IX), better feed conversion efficiency (MoS; 1.82, Rank X), easily available in local market (MoS; 1.68, Rank XI) and draught power (MoS; 1.27, Rank XII). Balaraju *et al.*, 2016 reported that 70 per cent of the respondents revealed draught power ability in indigenous cattle was ‘most important’ trait followed by least maintenance cost (64.17%), manure production ability (60%), tolerance to harsh climate (59.17%) and disease resistance trait (55.42%). Verma *et al.*, (2014) reported that suitability of Kherigarh breed in flooded area made the livestock farmers rear this breed despite a low milk productivity of animals. Ouma (2005) found that high degree of trypanotolerance was most preferred trait by farmers. Chenyambuga and Lekule (2014) reported that respondents preferred indigenous breeds as were easier to feed, prolific, tolerant to drought and endemic diseases. Ngowi *et al.*, (2008) revealed that most farmers (85.9%) preferred to keep Tarime cattle rather than exotic dairy cattle and their crosses. The desirable attributes of Tarime cattle were good tolerance to diseases (73.4%), good draught animals (65%), good and tasty meat (30.8%) and better milk quality (14.2%). Siddiquee *et al.*, (2013) reported that reasons behind preference for Desi cattle were easy management (24.48%) and lower feed requirement (12.59%).

Badri cattle is considered as a motherly figure and has various religious importance apart from it Badri cattle is better adaptable to the climatic condition and geographical features of hilly region as compared to other breeds of cattle, they can easily manage with the temperature fluctuation of the hilly region. Legs of Badri cattle are long and straight with foot pad and hooves which enables these cows to walk easily on heights

and valleys in the hilly areas adding to their draught strength in hilly terrain. As the Badri cattle feed on herbs present in hilly areas its medicinal properties can be easily seen in milk. According to respondent the 1litre milk of Badri cattle provide same amount of nutrition as provide by 2litre milk of exotic/ cross bred cattle. Urine also called as “*Gau ark*” of Badri cattle is also considered to have medicinal properties and a project to prepare ‘Gonyl’ a disinfectant prepared with Badri cattle urine sounding similar to phenyl has been initiated by Patanjali Ayurved and sell it for Rs50 per liter. Disease resistance is a very important characteristic of this breed as it rarely gets any disease and remains healthy throughout life as it is fed on pure vegetation and live in natural and fresh, pollution free condition of hilly areas of Uttarakhand. Badri cattle have docile temperament and have emotional bonding with the owner. It requires less maintenance and labour compared to other cattle breeds. It has better feed conversion efficiency compared to other cattle and easily digest coarse fodder and provide milk. Apart from it Badri cattle is easily available within village and has better draught power than other crossbred cattle. According to respondents hump of Badri cattle is considered to have a “*Suryaketu rekha*” which attracts sun rays towards the body while grazing and feeding and convert negative energy and harmful microbes into positive energy and useful microbes which are then eliminated through all its secretions like milk, urine, dung etc and is one of the reason to have medicinal properties.

Constraints imply the problems or difficulties faced by Badri cattle owners in rearing the cattle. It is evident from table 1 that majority (90.00%) of respondents faced constraints in rearing Badri cattle followed by 10.00 percent of respondents who didn't

faced constraints in rearing the cattle. It can be interpreted from table 2 that majority of respondents felt lack of government initiative as the biggest constraint (MoS; 2.66, Rank I) in rearing Badri cattle, followed by poor economic condition (MoS; 2.49, RankII), high cost of feeding and lack of nutritious feed and fodder (MoS; 2.47, RankIII), uncertain rainfall and decrease in agriculture activities (MoS; 2.34, RankIV), migration and unemployment (MoS; 2.29, Rank V), limited use of bull throughout the year (MoS; 2.18, RankVI), low milk production (MoS; 2.08, RankVII), no facility for disposal after its productive life is over (MoS; 1.94, Rank VIII), lack of separate shed for cattle (MoS; 1.93, RankIX), threat of wild animals (MoS; 1.91, RankX), costly wage of workers (MoS; 1.73, RankXI), lack of organized market (MoS; 1.56, RankXII), high cost of treatment (MoS; 1.28, RankXIII) and unavailability of quality bulls (MoS; 1.20, RankIV). Verma (2013) reported that high wages of worker, no access to credit facility, high cost of treatment, poor economic condition, high cost of feeding, lack of man power, limited use of bulls throughout the year were major constraints in rearing Kherigarh cattle. Patil *et al.*, (2009) reported that majority of the respondents (72.44%) stated their constraint as low milk production from the local breeds, 45.33% as shortage of green fodder and 41.33% as lack of clean water. According to Meena (2007) deficiency of quality feed and fodder, poor conception rate of artificial insemination, prolonged age at first calving, unhygienic housing/ resting place of animals and poor disease management system have been identified as the major constraints of animal husbandry in Kumaon region of Uttarakhand. Tailor (2012) reported that non-availability of green fodder, inadequate knowledge about scientific feeding of dairy animals, repeated breeding of animals, lack

of pedigree bulls for natural services, low milk productivity of animals and lack of scientific housing are major constraints faced by the respondents. Kaur *et al.*, (2011) found that 90 per cent dairy farmers believed high cost of feed and fodder, low price of crossbred cow milk, problem of disposal of old/disabled animals as the constraints in dairy farming. Sathyanarayan *et al.*, (2010) found that majority of farmers (18.46%) had expressed fodder problem as the major problem in livestock rearing system. Shinde (2011) found that farmers faced few challenges like un-remunerative milk prices, lack of assured irrigation, labour problems, high cost of inputs, management and disease problems. Kumar *et al.*, (2012) found high cost of feed, lack of guaranteed price of milk, low yield, lack of milk processing technologies and lack of cooperative network were important constraints of farmers in livestock farming. Respondents felt that the government is not taking proper steps to promote the Badri cattle rearing which is demotivating the respondents and creating a sense of discouragement. The poor economic condition of respondents is felt to be a major constraint as most of the respondents are either marginal or landless farmers who can't afford better facilities for the cattle like nutritious and balanced feed and fodder, proper housing conditions, maintenance during different seasons which indirectly affects the production performance of cattle. The high cost of feeding deters the respondents from providing better nutrition to the cattle which is very important for better performance and production. Uncertain rainfall and scarcity of water in hilly areas have made the irrigation of fields a difficult task which is leading to decreasing agriculture activities. Apart from it wild animals like monkeys and pigs also destroy the fields which have again affected the agriculture drastically indirectly leading

to the minimum use of bulls throughout the year as well as affects fodder production for cattle. Unemployment is forcing the rural youth to migrate to towns or cities for better job opportunities. There are many examples where most of the village families have migrated leading to decrease in population of the villages indirectly leading to decrease in cattle rearers. Badri cattle is a low milk producing cattle which is also listed as a constraint in its rearing by respondents. One important problem faced by the respondents is of disposal of the cattle after the productive life of cattle is over as they are unable to spend the resources on unproductive animals. The respondents said that previously they used to sell it to butchers at remunerative prices but after stringent government rules it has become very tough for them as they have no option left expect to abandon the animal to wander around on streets which may lead to an accident or other problems and don't want to practice it. Lack of separate shed is also a problem faced by respondents as many time they don't have proper separate shed, sometimes a shed is shared by 2-3 families and even some have a common place for cooking and dwelling of animals which they use alternatively which is an unhygienic practice. Wild animals are also a major threat in hilly areas as they may attack the cattle and cause some injury to it or make it a prey. Sometimes people cannot work for their cattle themselves because of old age or some disease or sometimes need assistance for maintenance or care, then firstly it becomes tough to find the workers and whosoever is ready will charge high wage for it which has again become a major constraint. The unorganized market in the local area restrict the respondents from getting remunerative price for milk or other dairy products as well no market is available for selling manure which otherwise could fetch them a good price.

Table.1 Distribution of Badri cattle owners according to preferences in rearing Badri cattle

Preferences in rearing Badri cattle	Almora (n=60)		Pauri Garhwal (n=60)		Pooled (N=120)						
	MoS	Rank	MoS	Rank	MoS	Rank	TS	MS <i>f</i> (%)	S <i>f</i> (%)	LS <i>f</i> (%)	NS <i>f</i> (%)
Religious importance	3.00	I	3.00	I	3.00	I	303	120 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)
Medicinal properties of milk & urine	3.00	I	2.40	VI	2.70	IV	324	91 (75.80)	22 (18.30)	7 (5.80)	0 (0.00)
Manure	2.65	III	2.63	IV	2.55	V	307	74 (61.70)	40 (33.30)	5 (4.20)	1 (0.80)
Disease resistance	2.77	II	2.83	II	2.81	III	334	96 (80.70)	23 (19.30)	0 (0.00)	1 (0.80)
Preferred taste of milk compared to exotic	2.23	IV	1.80	VIII	2.02	IX	242	32 (26.70)	58 (48.30)	30 (25.00)	0 (0.00)
Better adaptability	3.00	I	2.82	III	2.91	II	349	109 (90.80)	11 (9.20)	0 (0.00)	0 (0.00)
Docile temperament	1.96	V	2.41	V	2.19	VII	263	41 (34.20)	61 (50.80)	18 (15.00)	0 (0.00)
Draught power	1.33	VIII	1.20	XI	1.27	XII	152	10 (8.30)	12 (10.00)	98 (81.70)	0 (0.00)
Easily available in local market	1.55	VII	1.81	VII	1.68	XI	201	2 (1.70)	78 (65.50)	39 (32.80)	1 (0.80)
Livelihood generation	2.65	III	1.80	VIII	2.22	VI	266	42 (35.00)	62 (51.67)	16 (13.34)	0 (0.00)
Less input required in maintenance	2.65	III	1.56	X	2.11	VIII	253	44 (36.70)	45 (37.50)	31 (25.80)	0 (0.00)
Better feed conversion efficiency	1.92	VI	1.73	IX	1.82	X	219	21 (17.50)	57 (47.50)	42 (35.00)	0 (0.00)

MoS: Mean obtained score =Total obtained score/ Number of respondents

TS: Total obtained score MS: Most serious S: Serious LS: Least serious NS: Not serious

Table.2 Distribution of Badri cattle owners according to presence of constraint in rearing Badri cattle

Constraints	Almora (n=60)	Pauri Garhwal (n=60)	Pooled (N=120)
Present	54 (90.00)	54 (90.00)	108 (90.00)
Absent	6 (10.00)	6 (10.00)	12 (10.00)

Figure in parenthesis indicate percentage

Table.3 Distribution of respondents according to constraints faced in rearing Badri cattle

Constraints in rearing	Almora (n=54)		Pauri Garhwal (n=54)		Pooled (N=108)			Total respondents=120			
	MoS	Rank	MoS	Rank	MoS	Rank	TS	MS f(%)	S f(%)	LS f(%)	NS f(%)
Poor economic condition	2.17	VII	2.81	I	2.49	II	269	68 (56.70)	25 (20.80)	15 (12.50)	12 (10.00)
Costly wage for workers	1.67	X	1.79	X	1.73	XI	187	11 (9.20)	57 (47.50)	40 (33.30)	12 (10.00)
High feeding cost/ lack of feed	2.35	IV	2.59	II	2.47	III	267	58 (48.30)	43 (35.80)	7 (5.80)	12 (10.00)
Lack of organised market	1.40	XIII	1.70	XI	1.56	XII	168	2 (1.70)	56 (46.70)	50 (41.70)	12 (10.00)
Unavailability of quality bulls	1.24	XIV	1.17	XIII	1.20	XIV	130	0 (0.00)	22 (18.30)	86 (71.70)	12 (10.00)
High cost of treatment	1.46	XII	1.12	XIV	1.28	XIII	139	2 (1.70)	27 (22.50)	79 (65.80)	12 (10.00)
Lack of government initiatives	2.77	I	2.54	III	2.66	I	287	73 (60.80)	33 (27.50)	2 (1.70)	12 (10.00)
Lack of separate shed	1.55	XI	2.31	IV	1.93	IX	209	46 (38.30)	30 (25.00)	11 (9.20)	33 (27.50)
Migration / unemployment	2.70	II	1.89	VIII	2.29	V	248	43 (35.80)	54 (45.00)	11 (9.20)	12 (10.00)
Wild animals	1.96	IX	1.87	IX	1.91	X	207	30 (25.00)	39 (32.50)	39 (32.50)	12 (10.00)
No facility of disposal of unproductive animal	2.24	VI	1.65	XII	1.94	VIII	210	22 (18.30)	58 (48.30)	28 (23.30)	12 (10.00)
Low milk production	2.03	VIII	2.12	VI	2.08	VII	225	28 (23.30)	61 (50.80)	19 (15.80)	12 (10.00)
Uncertain rainfall /decrease in agriculture Operation	2.46	III	2.22	V	2.34	IV	253	43 (35.80)	59 (49.20)	6 (5.00)	12 (10.00)
Limited use of bulls throughout year	2.29	V	2.07	VII	2.18	VI	236	38 (31.70)	53 (44.20)	16 (13.30)	13 (10.80)

MoS: Mean obtained score =Total obtained score/ Number of respondents

TS: Total obtained score MS: Most serious S: Serious LS: Least serious NS: Not serious

Table.4 Distribution of Badri cattle owners according to suggestions given for conservation of Badri cattle

Suggestions for conservation of Badri cattle	Almora (n=60)	Garhwal (n=60)	Pooled (N=120)
Provide better feed /nutrition/fodder	60 (100.00)	60 (100.00)	120 (100.00)
Provide shed	45 (75.00)	47 (78.30)	92 (76.70)
Appreciation/incentives for Badri owners	60 (100.00)	60 (100.00)	120 (100.00)
Provide loan/ insurance facility	37 (61.70)	20 (33.30)	57 (47.50)
Develop special programmes	60 (100.00)	60 (100.00)	120 (100.00)
Good quality bull	25 (41.70)	25 (41.70)	50 (41.70)
Organize motivational camps	56 (93.30)	60 (100.00)	116 (96.70)
Provide chaff cutter	57 (95.00)	60 (100.00)	117 (97.50)

Figure in parenthesis indicate percentage

The high cost of treatment charge by veterinarians for minor ailments like fracture and for A.I purpose has also created a constraint in the rearing of cattle. Unavailability of quality bull is posing a threat on the germplasm and genetic characteristics of the cattle because a sire is considered half of the herd and can help in transmitting favorable traits like high milk production, better draft power etc. from generation to generation. After considering the preferences and constraints in rearing Badri cattle farmers provided different suggestion to influence conservation and production of the cattle. Table 4 shows various suggestions given by respondents which will further motivate respondents for rearing the Badri cattle and will help in protecting and conserving the breed.

Table reveals that cent percent of the respondents have advocated better availability of feed and nutrition for Badri cattle, appreciation/ incentives for Badri cattle owners and development of special programmes specifically for Badri cattle, followed by providing chaff cutter (97.50%), organizing motivational camps (96.70%), provide shed (76.70%), provide loan and insurance (47.50%) and good quality bulls (41.70%). Verma *et al.*, (2016) reported that farmers suggested Appreciation of livestock farmers by government, Provide a breeding bull in each village panchayat, develop special programmes and organize motivational camps for conservation of Kherigarh breed. Union Agriculture Minister Radha Mohan Singh said there was a need to market A2 milk separately, for the benefit of consumers and poor farmers rearing indigenous cattle. He claimed indigenous breeds were hardier and produced healthier milk (www.business-standard.com) Respondents say that one of the basic reasons for low production of milk by Badri

cattle is unavailability of good amount of nutritious food as owners can't buy the costly balanced feed for the cattle. They stress on the fact that if Badri cattle is provided with a balanced diet it will surely give good amount of production. So government should take initiatives to provide nutritious fodder to the Badri cattle owners free of cost or at low cost. Respondents feel that the owners rearing Badri cattle should be appreciated by the government in form of some incentive or prize which will motivate them and encourage others to rear the cattle. Respondents expressed that there is a need to develop special programme by the government specifically concerning the Badri cattle so that its population can be increased. Government should also try to increase agriculture practices in the study area which will further increase the requirement of bullock rearing and will make it a profitable business. Respondents also demanded of chaff cutter by the government as they were well known to the fact that chaffed fodder is better digested than course/ ungrinded fodder and reduce wastage. Respondents said that cross bred cattle are provided with chaffed fodder which leads to easy digestion and decrease amount of energy spend in digesting the fodder which is one of the factor for their high milk production. Respondents advised of carrying out motivational camps by government from time to time which will further enhance the rearing of Badri cattle as people will feel noticed and will help in protecting the cattle. Respondents said that there is a lack of proper shed for the cattle. Some respondents were even sharing the sheds with each other so demanded of proper pucca, spacious and well maintained shed from the government. Respondents also advocated the availability of insurance and loan facility specifically for Badri cattle so that they can get proper remuneration during

some accident or disease outbreak and can treat the animal properly. They expressed that bullocks frequently get injured during agriculture operations and it takes a huge amount for their treatment which sometimes become unaffordable so a proper insurance facility can help to combat such situation and will further encourage the villagers for rearing the Badri bullock. Respondents also felt the need of good quality bull atleast 3-4 per village. For this government can carry out some breeding programme in the village and identify bulls with superior characters and traits and register them as breeding bull. Even the semen of recognised bulls can be stored. This will help in preserving the germplasm and will favour the transmission of beneficial traits in next generation.

Respondents feel that the government is not taking proper steps to promote the Badri cattle rearing which is demotivating the respondents and creating a sense of discouragement. So the government should take initiatives to improve the economic condition of cattle owners by providing them employment opportunities in the area which will also decrease the tendency of migration. People are also migrating because of lack of proper education facility in the rural area so better schooling is also a challenge in front of government. Wild animals like monkeys and pigs also destroy the fields which have again affected the agriculture drastically indirectly leading to the minimum use of bulls throughout the year as well as affects fodder production for cattle. So these animals should be caught off by the forest department and crops should be protected from them. Draught purpose utilization for cattle can be increased by increasing and incentivizing agricultural practices in the area. Selling of calves and cattle can be made a profitable business only if farmers get profit in rearing Badri cattle which can again be done by creating better

market for different Badri cattle products and increasing its milk production by any method like providing the cattle with better nutrition, by selective inbreeding. Bull with better characters can be selected and only selective bulls should be used for natural insemination and even the semen of the selected bull can be preserved for generations to come so that we will have a better germplasm preserved. One important problem faced by the respondents is of disposal of the cattle after the productive life of cattle is over as they are unable to spend the resources on unproductive animals, so for this government should establish Gaushalas for unproductive animals. Government of Uttarakhand can also launch Aanchal desi milk as The Gujarat Cooperative Milk Marketing Federation (GCMMF), largest in the segment, launched 'Amul Deshi' milk, (from indigenous Kankrej cows) launched by P.M (www.business-standard.com). Amul has priced its A2 milk at Rs 70 a litre. as there is growing demand for A2 milk because of its health benefits so Uttarakhand should exploit the opportunity as it has better reproduction ability and has more nutritious and vitamin rich milk compared to other indigenous and cross bred cattle (origin-www.amarujala.com)

Badri cattle are highly diseases resistant and survive very well in the undulated topography and climatic condition in the hills of Uttarakhand. Most of the health problems of Badri cattle are prevented by local treatment and suitable management intervention whereas the crossbred cattle is susceptible for many infectious diseases and it's production efficiency also decreases in the climatic condition of Uttarakhand. But even then a sharp decline in Badri cattle population and increase in crossbred cattle population is noticed mainly because of decreased utility of Badri cattle along with

migration, less production and shrinking of grazing land. Constitution of organized market for Badri cattle products with promotion of organic farming with appropriate incentives are needed for promoting Badri cattle keeping among farmers of Uttarakhand.

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