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TRADITIONAL BREEDING PRACTICES ADOPTED BY PROFESSIONAL BREEDERS OF KANKREJ CATTLE IN BANASKANTHA DISTRICT OF NORTH GUJARAT STATE

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Abstract- A survey study was conducted to acquire the first hand information on traditional breeding practices adopted by professional breeders of Kankrej cattle in Banaskantha district of North Gujarat State. For the present investigation, five (5) talukas (Amirgadh, Bhabhar, Deesa, Deodar and Vav) of the District were selected purposively on the basis of density of population of the professional breeders. Six (6) villages were randomly selected from each taluka and accordingly five (5) respondents were randomly selected from each village. Therefore, the study sample consisted of 150 (N=150) professional breeders of Kankrej cattle. The data were collected by personal interview technique through a structural schedule. After measuring the level of constraints, the data was tabulated and interferences were drawn. It was observed that majority of professional breeders used bull for heat detection and natural services due to grazing practices. Half of the respondents did not have true type bull. Majority of professional breeders diagnosed pregnancy after 4 months by visually. Higher number of respondents detected heat by bellowing and vaginal discharge. Nonetheless, they had certain prejudice against artificial insemination. Conversely, they had good knowledge about indigenous techniques for anoestrus and repeat breeder cows and heifers.

Keywords- Kankrej cattle, Breeding practices, Professional breeder, Oestrus, ITK, Prejudice.

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Introduction

India is a vast country with diversified agroclimatic conditions. Majority of farmer families are engaged in agricultural operations for about 8-9 months in a year, however it is accepted that agriculture sector alone is unable to provide necessary employment and income to the farmers. At the same time, livestock sector is well acknowledged as an important source for employment generation and animal husbandry constitutes an important activity of the rural population, mostly a subsidiary occupation [1].

Cattle and buffalo are the preferred species for animal husbandry and dairying. Professional breeders maintain the local cattle & buffalo breeds since centuries as traditional animal keepers in India. They follow their own grazing, breeding and shelter practices for their herd. On the other hand, for optimum productivity, there is primary need of proper breeding, feeding and health management strategies [2,3]. However, the major breeding difficulty in the smallholder areas is that herds are run as groups possessed by several professional breeders [2,4] and that is the reason why the cattle owners cannot choose the breed of bull or cow they wish for. Nevertheless, rate of inbreeding is also found to be high since inferior cows and bulls are maintained in the individual herd [5]. Furthermore, very less systematic study on breeding practices was availed for the benefit of the poor and resource less breeders. Keeping this in view, the present study will be planned to delineate the information on breeding management practices adopted by professional breeders of Kankrej cattle in Banaskantha District of north Gujarat state.

Materials and Methods

Locale of the study

The present study was carried out among the professional breeders of Kankrej cattle in Banaskantha district of north Gujarat state.

Methods of sampling

Present study was carried out in Banaskantha District. Five (5) talukas (Amirgadh, Bhabhar, Deesa, Deodar and Vav) of the District were selected purposively on the basis of density of population of the professional breeders. Six (6) villages were randomly selected from each taluka and accordingly five (5) respondents were randomly selected from each village.

Selection of the respondents

The study sample consisted of 150 (N=150) professional breeders of Kankrej cattle.

Tools and techniques of data collection

The data were collected by personal interview technique through a structural schedule. These constraints were measured in all the categories. i.e. feeding, breeding, health care and milk and marketing practices adopted by the professional breeders of Kankrej cattle. After measuring the level of constraints, the data was tabulated and interferences were drawn.

Data analysis

The results were statistically evaluated using chi square (X^2) test as per method of Snedecor and Cochran [6]. $p < 0.05$ were considered to be statistically significant.

Result

Potential production of animals depends on breeding management adopted by the animal keepers. Regular calving and better conception rate can be achieved through proper breeding practices, so it was essential to know the breeding practices followed by professional breeders of Kankrej cattle. The results on

different variable of present study were tabulated, summarized and discussed below under different heads.

Heat detection by whom

[Table-1] indicated that majority (86.7%) of professional breeders used bull for heat detection while remaining 13.3% respondents detected heat symptom visually. Usually, heat detection was done by using bull during grazing hours. This was contrary to the finding of Marbaniang [7] who concluded that all the (100.0 %) farmers checked heat of their animals by themselves in hilly tract of Meghalaya.

Table-1 *Breeding practices adopted by professional breeders of Kankrej cattle*

Sr No	Category	No. of professional breeder's under different Talukas With percentage in bracket (%)					Total
		Amirgadh	Bhabhar	Deesa	Deodar	Vav	
1.	**Heat detection by whom**						
a.	By bull	27 (90.0)	26 (86.7)	25 (83.3)	25 (83.3)	27 (90.0)	130 (86.7)
b.	Visually (by owner)* *(Visual symptoms were given in [Table - 2]	3 (10.0)	4 (13.3)	5 (16.7)	5 (16.7)	3 (10.0)	20 (13.3)
	X^2 = 1.16 (NS)						
2.	**Method of mating**						
	By bull	30 (100.0)	30 (100.0)	27 (90.0)	28 (93.3)	30 (100.0)	145 (96.7)
	A.I.	0 (00.0)	0 (00.0)	3 (10.0)	2 (06.7)	0 (00.0)	5 (03.3)
	X^2 = 8.28 (NS)						
3.	**No. of bull utilized for breeding purposes in herd**						
	One bull	28 (93.3)	28 (93.3)	25 (83.3)	27 (90.0)	26 (86.7)	134 (89.3)
	Two bull	2 (06.7)	2 (06.7)	5 (16.7)	3 (10.0)	4 (13.3)	16 (10.7)
	X^2 = 2.37 (NS)						
4.	**Characters of Kankrej bull used in natural service**						
	True type	11 (36.7)	15 (50.0)	13 (43.3)	14 (46.7)	14 (46.7)	67 (44.7)
	Not true type	19 (63.3)	12 (40.0)	14 (46.7)	14 (46.7)	16 (53.3)	75 (50.0)
	Not own bull	0 (00.0)	3 (10.0)	3 (10.0)	2 (06.6)	0 (00.0)	8 (05.3)
	X^2 = 8.30 (NS)						
5.	**Adoption of pregnancy diagnosis in Kankrej cattle**						
	By visually	30 (100.0)	30 (100.0)	29 (96.7)	27 (90.0)	30 (100.0)	146 (96.7)
	By village A.I. worker	0 (00.0)	0 (00.0)	1 (03.3)	3 (10.0)	0 (00.0)	4 (03.3)
	X^2 = 8.74 (NS)						
6.	**Age of pregnancy diagnosis after mating the cows**						
	3 months	2 (06.7)	2 (06.7)	3 (10.0)	7 (23.3)	0 (00.0)	14 (09.3)
	4 – 5 months	17 (56.7)	23 (76.7)	15 (50.0)	15 (50.0)	21 (70.0)	91 (60.7)
	Above 5 months	11 (36.6)	5 (16.6)	12 (40.0)	8 (26.7)	9 (30.0)	45 (30.0)
	X^2 = 15.81* (* chi square value significant at 5% level)						

Method of mating

It was found that 96.7% professional breeders adopted natural mating for breeding their Kankrej cows and heifers, whereas meager (03.3%) respondents relied upon artificial insemination (A.I.). Majority of professional breeders have not adopted artificial insemination due to religious beliefs and rearing practices (grazing) of cattle. Natural services in Kankrej cattle were due to easy availability of Kankrej bull in their herd or villages. This Findings were contrary to Modi [8] who stated that 13.0%, 5.0% and 82.0% respondents adopted A.I., natural service and both A. I. /natural service, respectively in Sabarkantha distirct.

No. of bull utilized for breeding purposes in herd

Data depicted in [Table-1] showed that majority (89.3%) of professional breeders used one bull while 10.7% used two bulls for breeding of their cows and heifers. Two bulls mainly reared due to large number of cows and heifers kept by respondents. Data from given table correlates with the herd size.

Characters of Kankrej bull used in natural service

It was revealed that half (50.0%) of professional breeders did not utilize true type of bull and 5.3% did not have their own Kankrej bull for breeding. Professional breeders who had less (10) animals did not reared their own Kankrej bull in their herd.

Adoption of pregnancy diagnosis in Kankrej cattle

Pregnancy diagnosis is important to know pregnancy in animals or any problem

regarding genital organs. It was observed from [Table-1] that most (96.7%) of the professional breeders diagnosed pregnancy of their cows by external indication like; large size belly, thick vaginal discharge, movement of fetus in right side, swollen udder and teats. Only 3.3% of the respondents followed pregnancy diagnosis through village A.I. workers who were illiterate. It was found that majority of respondents did not prefer pregnancy diagnosis by veterinarian and A.I. workers to eliminate the fee cost. Current finding was well supported with findings of Marbanaing [7] and Uttamkumar [9] who found that all the (100%) respondents were doing self pregnancy diagnosis of their animals in hilly tract of Meghalaya and traditional Sahiwal keepers of Ladhiyana district, respectively.

Age of pregnancy diagnosis after mating the cows

Period of pregnancy diagnosis after service in different months presented in [Table-1] which indicated that majority (60.7%) of professional breeders of Kankrej cattle followed the pregnancy diagnosis in 4 to 5 months and above 5 months after service either visually or through A.I. workers. Only 9.3% respondents were alert for pregnancy diagnosis within 3 months of service in their animals.

Heat detection symptoms

[Table-2] depicted the information regarding visualize the heat symptom for heat detection employed by breeders. It was found that 15.6, 56.7, 19.7 and 8.0% professional breeders detected estrus in Kankrej cow by observing heat symptoms like bellowing, bellowing + vaginal discharge, bellowing + vaginal discharge + mounting on another animals and other symptoms (swollen valve, reduced milk, frequent urination and became a silent) respectively, in the district. Majority of the respondents (56.7 %) relied upon mucous discharge + bellowing as heat symptoms. However, 27.7% respondents observed combined symptoms of either bellowing + vaginal discharge + mounting on other animal and other symptoms [Table-2]. Generally vaginal discharge of cows in early morning was preferably heat marker as indicated by professional breeders in the district. Present finding was match with findings of Madan [10] who evidenced that vaginal discharge, frequent urination and bellowing were common sign of estrus. Divekar [11] observed that majority (53.0 %) of Gir cow owners of Anand districts of Gujarat were conscious for the sign of estrus like bellowing, frequent urination, and uneasiness.

Table-2 *Heat detection symptoms*

Sr. No.	Symptoms of heat detection	No. of professional breeder's under different Talukas					Total
		Amirgadh	Bhabhar	Deesa	Deodar	Vav	
1	Bellowing	1 (33.3)	1 (25.0)	0 (00.0)	1 (20.0)	0 (00.0)	3 (15.6)
2	Bellowing + Vaginal discharge	2 (66.7)	2 (50.0)	3 (60.0)	2 (40.0)	2 (66.7)	11 (56.7)
3	Bellowing + Vaginal discharge + Mounting on another animal	0 (00.0)	1 (25.0)	1 (20.0)	1 (20.0)	1 (33.3)	4 (19.7)
4	Other (Swollen ulvar lips + reduction in milk)	0 (00.0)	0 (00.0)	1 (20.0)	1 (20.0)	0 (00.0)	2 (08.0)
$X^2 = 28.53$ (NS)							

Prejudice against A.I.

Depiction of data regarding prejudice against A.I. in [Table-3] revealed that majority (56.0%) of professional breeders believed in superstation against A.I., while 27.3% respondents believed that cow became a repeat breeder and suffered to prolapse after artificial insemination. About 24.7% respondents had superstation as well as belief in less success rate for A.I. Good proportion (16.7 %) of respondents had belief about less success rate for A.I. in Kankrej cattle. Belief about repeat breeding and prolapse after A.I was more prevalent in Deesa. Awareness in aspect of breeding practices like heat detection, time for service to Kankrej cattle after estrus detection, duration of service after calving and pregnancy diagnosis after service were adopted in the Kankrej cattle and follow the age old practices by professional breeders of Banaskantha district. Therefore, extensive efforts should be made create awareness in professional breeders of Kankrej cattle.

Indigenous technical knowledge used for anoestrus animals

Service period and calving interval were prolonged due to more numbers of anoestrus animals. Anoestrus in animals also reduces herd average. However, some feeding treatment given to anoestrus animals by professional breeders as per their knowledge which has been mentioned in [Table-4]. Majority (89.6%) of professional breeders applied ethno-veterinary practices for anoestrus animals and they usually utilized *Bajara, Mothbean, Guwar Bhardo* along with compound cattle feed (*Banas dan*) or *Bhiloma* along with compound cattle feed. It was also recorded that soyabean oil was used for induction of oestrus in animal. On the other hand, about 10.6% of the respondents did not care about anoestrus to their animals and leave it for nature.

Table-3 *Prejudice against A.I.*

Sr No	Category	No. of professional breeder'sunder different Talukas					Total
		Amirgadh	Bhabhar	Deesa	Deodar	Vav	
1	Superstation against A.I.	9 (30.0)	11 (36.7)	8 (26.6)	9 (30.0)	10 (33.3)	47 (31.3)
2	Less success rate+ Superstation	7 (23.3)	5 (16.7)	8 (26.6)	7 (23.3)	10 (33.3)	37 (24.7)
3	Less success rate	10 (33.4)	6 (20.0)	1 (03.4)	2 (06.7)	6 (20.0)	25 (16.7)
4	Other (Repeat breeder or prolapse)	4 (13.3)	8 (26.6)	13 (43.4)	12 (40.0)	4 (13.4)	41 (27.3)
5	**Total**	30	30	30	30	30	150
$X^2 = 21.61$*							

* chi square value significant at 5% level

ITK for repeat breeder cows

Repeat breeder cows increase the service period and calving interval of the herd. It will also hike the treatment cost of the herd. About 30.0% (45/150) professional breeders in the district applied ITK for their repeat breeder cows. They applied these practices after mating of cows with bulls. The practices include drenching of castor oil (15.3 %), juice made from fennels to the repeat breeders cows (5.0 %).

Some time they applied the mixture of turmeric powder with garlic exterior to the cervix (5.0%) to the cows after mating. These types of practices applied due to belief that cows did not conceive due to excess of heat in the body which does not allow fertilizing the cows and these practices reduce the heat in the body and make the cow cool.

Very meager respondents did not allow the cows for sitting and not allow drinking water after mating for 4 to 6 hours. It was due to belief that cows throw away semen from genital tract due to sitting or pressure created with drinking of water.

Table:-4: Indigenous technical Knowledge used for anoestrus animals

Sr. No.	Category	No. of professional breeders under different Talukas					Total
		Amirgadh	Bhabhar	Deesa	Deodar	Vav	
1	Bajara + Math+ Guwar bhardo + Banas dan	12 (40.0)	11 (36.6)	14 (46.7)	17 (56.7)	9 (30.0)	63 (42.0)
2	Bhiloma + Banas dan	3 (10.0)	8 (26.7)	5 (16.7)	4 (13.3)	6 (20.0)	26 (17.3)
3	Soyabean oil or Mustered oil	10 (33.3)	8 (26.7)	9 (30.0)	8 (26.7)	10 (33.3)	45 (30.0)
4	No treatment	5 (16.7)	3 (10.0)	2 (06.6)	1 (03.3)	5 (16.7)	16 (10.6)
$X^2 = 10.25$ (NS)							

Conclusion

This survey study was conducted to generate the first hand information on traditional breeding practices adopted by professional breeders of Kankrej cattle in Banaskantha district. upon on the current findings it can be revealed that higher number of professional breeders had lack of knowledge regarding improved animal husbandry practices. They are strong conserver of our indigenous breed of cattle so there is lot of scope for improvement in dairy husbandry practices through increasing the existing level of knowledge of professional breeders of Kankrej cattle.

Conflict of Interest: None declared

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