Research paper

A note on Kathani cattle qualitative body characteristics

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ABSTRACT

Kathani cattle is an unexplored population of Vidarbha region of Maharashtra. The information on physical traits of 9474 Kathani animals from Vidarbha region of Eastern Maharashtra state were collected. The white coat color pattern was the highest (67.09%) in Kathani animals followed by reddish (29.14%) and blackish (3.77%). Most of the animals (64.30%) are of white skin colored followed by reddish blackish and kosa- a combination of black and white. Muzzle, horns and hooves are black in almost all of the Kathani cattel. Horns are either straight or curved. Forehead is straight. Poll is non-prominent mostly. Hump is either medium or small in size. Dewlap is medium in most of the animals. These physical traits may be helpful in developing the breed descriptors of Kathani cattle for registration as a cattle breed of India.

Keywords: Kathani cattle, qualitative characters, lesser known cattle, Vidarbha region.

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INTRODUCTION

Maharashtra State enjoying a premier position in the country with reference to livestock genetic resources with six breeds of cattle (Khillar, Deoni, Gaolao, Red Kandhari, Dangi and Konkan Kapila). Other than these registered cattle breeds various lesser known cattle populations exists, which are not yet been properly documented and registered, hence categorized under Non-Descript (ND) in Livestock Census. Kathani cattle, which are distributed in Chandrapur, Gadchiroli, and Gondia districts of Vidarbha region of eastern Maharashtra state, is one of such important indigenous draft purpose cattle population. Being considered under ND category, recently a network programme was undertaken to characterize this cattle population. While characterizing the population unlike growth, reproduction, production and economic aspects, the qualitative body characteristics like hump, dewlap, naval flap, prepuce, horn pattern, muzzle, coat colour, ear position are very much important from the point of defining the breed. Published information on these characteristics is very much scanty hence an attempt was made to study the qualitative boy characteristics of these animals.

MATERIAL AND METHODS

The information on different qualitative body characteristics of 9474 Kathani animals comprising of calves below one year (1739), young stock of 1 to 3 years (1259), adult females (3020) and adult males (3456) from breeding tract of 118 randomly selected villages from 13 tehsils in Chandrapur, Gadchiroli and Gondia districts of Vidarbha region of Eastern Maharashtra state were collected and analyzed for present study. The qualitative body characters of hump, dewlap, navel flap, prepuce, horn pattern, muzzle, coat colour, ear position were recorded through pre-tested questionnaire and trained enumerators during survey period of December 2017 to March 2020. All the qualitative body characters were subjectively classified and grouped accordingly. The data was analyzed using standard statistical methods.

RESULTS AND DISCUSSIONS

Body colour

In Kathani animals' three different coat colors namely white, blackish, and reddish were found in survey area. The animals of white coat color pattern were highest (67.09%) followed by reddish (29.14%) and blackish (3.77%). District-wise distribution of animals showed that highest percentage of white colored animals were in Gondia district (76.46%), followed by Chandrapur (66.79%) and least in Gadchiroli district (58.75%). Pawar (2002) in his study on 128 Khillar animals from organized herd recorded white coat color in 83.59 per cent animals. Reddish and blackish coat colored animals were more in Gadchiroli (36.36 & 4.89%) followed by Chandrapur (29.40 & 3.81%) and Gondia (21.03 & 2.51%). Overall 64.30% animals were of white skin colored, 23.65% reddish, 7.56% blackish and remaining 4.49% animals were kosa colored (combination of black and white). Reddish coat colored animals were dominant in Gadchiroli and Chandrapur districts (33.87 & 25.01%, resp.), however in Gondia district blackish colored animals were more (19.55%) as compared to other districts.

Jain *et al.* (2018) reported 54 per cent of Kosali cattle had red coat color followed by white (36%), black, and greyish white (5.5%) and mixtures of other colors (4.5%). Three types of muzzle colors were noticed as black, mottled and

carroty (Color of *Daucus carrota*). Almost all the Kathani animals were of black muzzled (96.39%), other than this 2.12 per cent Kathani animals were of carroty muzzle colored and remaining 1.49 per cent animals were of mottled type muzzle. Pawar (2002) while reporting different pattern of muzzle color observed that black, mottled and carroty muzzle were in 53.13, 38.28 and 8.59 per cent animals, respectively in Khillar animals. The mottle muzzled animals were maximum in Chandrapur district (3.17%) while in Gadchiroli district carroty muzzle animals were maximum in number (2.82%). Eyelid and eye-ball color was noticed as perfectly black in majority of animals, however carroty eyelid and eye ball was also seen in few animals. Black eyelid and eye-ball color was found in almost all animals 97.35 and 99.03 per cent animals, respectively while, carroty color was noticed

Table: 1 Color distribution of different body parts

Body parts	Sex / No.	Below 1Yr.		Young stock (1-3Yrs)		Heifers	Milking	Working & breeding bulls	Working bullock	Breeding bulls	Total
	Sex	M	F	M	F						
Color	No.	891	848	671	588	485	2535	284	2614	558	9474
Coat	White	69.02	64.74	61.70	66.50	68.04	69.23	61.62	67.94	62.90	67.09
(%)	Blackish	1.80	2.12	4.47	2.04	2.27	3.16	7.04	5.01	6.99	3.77
	Reddish	29.18	33.14	33.83	31.46	29.69	27.61	31.34	27.05	30.11	29.14
Skin	White	65.43	62.74	61.40	65.48	64.54	66.04	61.27	65.38	55.56	64.30
(%)	Blackish	8.08	6.96	5.51	4.25	7.63	8.56	5.63	7.27	11.29	7.56
	Reddish	23.46	25.83	28.91	25.51	24.33	21.38	27.11	22.65	25.09	23.65
	Kosa	3.03	4.48	4.17	4.76	3.51	4.02	5.99	4.71	8.06	4.49
Muzzle	Black	95.17	94.10	96.57	95.41	97.11	96.69	97.89	97.21	96.06	96.39
(%)	Carroty	3.82	4.60	1.79	2.38	1.03	1.85	0.70	1.38	2.15	2.12
	Mottled	1.01	1.30	1.64	2.21	1.86	1.46	1.41	1.42	1.79	1.49
Eyelid	Black	95.62	96.11	97.32	96.43	96.91	98.19	98.94	97.67	97.31	97.35
(%)	Carroty	4.38	3.89	2.68	3.57	3.09	1.81	1.06	2.33	2.69	2.65
Eyeball	Black	98.77	98.82	99.11	98.64	98.97	99.13	100.00	99.12	98.75	99.03
(%)	Carroty	1.23	1.18	0.89	1.36	1.03	0.87	--	0.88	1.25	0.97
Hoof	Black	96.41	95.05	96.27	94.56	95.26	96.21	97.18	96.79	94.62	96.07
(%)	Carroty	3.59	4.95	3.73	5.44	4.74	3.79	2.82	3.21	5.38	3.93
Tail	Black	92.03	90.68	86.59	87.07	86.80	90.10	86.97	88.71	86.92	89.06
switch	Reddish	1.01	1.77	1.64	2.72	1.24	1.58	0.70	0.96	1.79	1.41
(%)	Mixed	6.96	7.55	11.77	10.20	11.96	8.32	12.32	10.33	11.29	9.52
Vulva	Black	--	90.68	--	87.07	86.80	90.10	--	--	--	89.45
(%)	Reddish	--	1.77	--	2.72	1.24	1.58	--	--	--	1.73
	Mixed	--	7.55	--	10.20	11.96	8.32	--	--	--	8.82




in 0.97 per cent animals. Carroty colored eyelid and eyeball animals were highest in Chandrapur district (5.03 & 1.28%, resp.). Animals having black colored hooves were noticed to be 96.07 per cent and remaining 3.93 per cent of animals were carroty colored hooves. Pawar (2002) noticed black and carroty hooves in 74.21 & 25.79 per cent, respectively in Khillar animals. Carroty hoof colored animals were highest in Chandrapur district (9.29%). Black color tail switch was found in most of the animals (89.86 %), followed by mixed (9.52%) and reddish (1.41%). It was noticed that 89.45 per cent females were of black colored vulva, 8.82 per cent mixed color and 1.73 per cent reddish colored vulva. Fraction of milking cows having black vulva was lesser (74.34%) in Chandrapur district compared to other two districts. From market point of view, it appears that qualitative characters have immense importance. Kulkarni *et al.* (2013) recorded black muzzle in 99.32 per cent animals, eye lid and eye ball black in 99.05 per cent animals and black hooves in 99.53 per cent Kathani animals.

Horn characters

For horn character study purpose adult animals were considered as in calves and young stock horns under growing stage. More than half of animals under survey (52.87%) exhibited straight horns and remaining 47.13 per cent animals had curved horns. Overall 94.14 per cent Kathani animals had black colored horns and percentage of white colored animals was only 5.86. District-wise variation in horn pattern showed that percentage of straight horned animals were maximum (67.97) in Gadchiroli district compared to animals of Chandrapur (44.62%) and Gondia district (44.91%). White horn colored animals were more in Chandrapur district (14.67%) while in Gadchiroli and Gondia districts white colored animals were less than one per cent. (0.70 & 0.38%, resp.) Black colored horns noticed to be prominent in Kathani animals (93.98%) Kulkarni *et al.* (2013) had reported similar observation in Kathani cattle.

Horn orientation

Horn curvature pattern indicates the choice favored by the farmer and his selective criteria for look of the horns from market point of view. The horn curvature having outward with pointing tips seems to be favored by the Kathani animal keepers as 64.58 per cent surveyed animals had such type of horns, followed by upward with pointing tips horn curvature (16.87%) and inward with pointing tips (12.27%). The percentage of downward and front side horns tips was 2.88 and 3.39, respectively. It was also noticed that there was district-wise variation in liking of horn pattern, e.g. 80.71 per cent animal owners from

Table: 2 Qualitative attributes for other body parts in Kathani cattle

Character	Age group	Calves (< 1Yr)		Young Stock (1-3Yrs)		Heifers	Milking cows	Work & breeding bulls	Working bullock	Breeding Bulls	Total
		Male	Female	Male	Female						
	No.	891	848	671	588	485	2535	284	2614	558	9474
Hump	Large	--	--	--	--	--	--	4.93	3.63	6.09	1.85
(%)	Medium	--	--	47.84	40.31	59.18	51.08	58.80	55.28	61.47	52.94
	Small	--	--	52.16	59.69	40.82	48.92	36.27	41.09	32.44	45.21
Dewlap	Large	2.36	2.36	3.13	1.19	4.54	6.27	15.14	11.55	11.65	6.97
(%)	Medium	65.10	55.31	60.95	61.05	64.74	80.83	68.31	76.17	72.58	71.46
	Small	32.55	42.33	35.92	37.76	30.72	12.90	16.55	12.28	15.77	21.57
Naval flap	Absent	25.36	45.17	27.42	44.90	39.59	49.90	24.30	26.78	23.66	36.05
(%)	Large	3.03	0.71	--	--	0.82	0.28	2.46	1.95	3.23	1.27
	Medium	34.57	23.35	32.19	23.64	33.40	21.97	35.92	35.23	43.37	30.02
	Small	37.04	30.78	40.39	31.46	26.19	27.85	37.32	36.04	29.75	32.66
Prepuce	Large	1.35	--	--	--	--	--	8.10	5.36	6.27	4.19
(%)	Medium	43.66	--	51.71	--	--	--	55.28	55.89	53.76	52.89
	Small	32.66	--	30.70	--	--	--	27.46	24.29	22.94	26.66
	Absent	22.33	--	17.59	--	--	--	9.15	14.46	17.03	16.26

Gadchiroli district favored horns having outward with pointing tips, whereas, 60.62 and 52.45 per cent animals from Gondia and Chandrapur districts, respectively had horns of similar pattern. In relation to other horn pattern it was seen that animals from Gondia district had upward pointing horns in maximum number (28.75%) compared to other districts animals. The animals in Chandrapur district had inward pointing horns in more number (22.73%). In breeding bulls and bullocks sharpening and trimming of horn is practiced to beautify them especially for cattle festival of the year (locally called "Bail Pola").

Head and ear characters

In Kathani animals, forehead was straight in 99.72 per cent animals and concave in 0.28 per cent animals. The poll prominence in all surveyed animals was observed only in 7.21 per cent animals and remaining 92.79 per cent animals were of non-prominent for poll character. Regarding the orientation of ears, it was found that all animals enrolled under physical measurements had horizontal ears. Pawar (2002) reported 94.53 per cent animals were of horizontal ears in Khillar animals.

Other body part characters

These body parts are divided into three major components as large, medium and small. While judging the individual animal these body parts considered proportionate to body size of animal. Age group and sex-wise distribution of animals based on hump, dewlap, navel flap and prepuce size is presented in Table-2

Hump: The hump size was taken as vertical distance from end point of shoulder to top of hump. Age group wise distribution of animals showed that calves below one year did not exhibit prominent hump hence unable to record. For other animals it was noticed that more than half number of animals (52.94%) had medium size hump and 45.21 per cent animals had small hump size, while only 1.85 per cent animals had large hump, which was in 4.37 per cent animals from Gadchiroli and 1.08 per cent in Chandrapur district animals. Comparatively males had prominent hump to that of females in all age groups.

Dewlap: The fraction of Kathani animals of small, medium and large dewlap were 21.57, 71.46 and 6.97 per cent, respectively. More than half per cent (Male-65.10 & Female 55.31) calves of below one year age group were in medium size dewlap group. In young stock group (age 1 - 3 Yrs.) over two third fraction of animals (60.95% males & 61.05% females) were of medium size dewlap. The dewlap of 64.74 per cent heifers and 80.83 per cent milking cows was classed as medium sized. Regarding adult males more than 68 per cent animals (68.37% working & breeding bulls, 76.16% working bullocks, 72.58% breeding bulls) were in medium sized dewlap. Small and large size dewlap animals were more in Chandrapur district (40.11 & 9.74%, resp.) whereas, percentage of large dewlap animals in Gadchiroli and Gondia district was 8.07 and 2.26 per cent, respectively.

Navel flap: The navel flap in some animals was not visible hence could not be recorded and marked as absent. The overall percentage of animals for absent, large, medium and small groups was 36.05, 1.27, 30.02 and 32.66, respectively. The breeding bulls were maximum in medium group (43.37%), however working & breeding bulls as well as working bullocks were maximum in small sized navel flap group and their percentage was 37.32 and 36.04, respectively. The 33.40 per cent heifers and 27.85 per cent milking cows were classed as medium and small navel flap group, respectively. In 1-3 years age group young stock, majority (40.39% males & 31.46% females) appeared in small navel flap group. The corresponding figures for calves below one year was 37.04 per cent males and 30.78 per cent females.

Prepuce: Under prepuce total 5018 males were measured. More than half males (52.89%) were in medium prepuce size, followed by small (26.66%) and large (4.19%). Almost all breeding category bulls were classed as medium sized prepuce group. The percentage of animals having large prepuce was lowest in Gondia district (1.19) compared with animals from Gadchiroli (5.55) and Chandrapur districts (5.04).

CONCLUSION

Physical traits of Kathani cattle are highly homogenous within the population, which is a primary consideration for a breed. The data obtained in the present study may be helpful in developing the breed descriptors of Kathani cattle population and registration of this population as a new cattle breed of India.

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