



Present status of Krishna Valley cattle: An endangered breed of cattle

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Krishna Valley breed of cattle is traditionally existed for long time in its breeding tract of Karnataka and border districts of Karnataka and Maharashtra. The breed was locally known and recognized since ages for its utility in the breed tract. Old literature says that the Krishna Valley breed of cattle is used exclusively in the black cotton soil of the watershed of the river Krishna and other adjacent rivers such as Ghatprabha and Malprabha in the southern portions of Bombay and Hyderabad State of India presently in Karnataka State. Compact hooves, small body size, fast growth rate, docile temperament, less fodder requirement and affordable market value are breed characteristics compared to other breeds of Karnataka and Maharashtra. The breed thus has shown tremendous scope and demand in and around the breeding tract. The population of this breed in 1946 was cited as 650 000. Presently there are hardly any true to type animals left and there are not more than 1 000 animals, including both sexes and all age groups looking like graded breed type distributed in the breeding tract. Since scanty available literature does not throw light on the status of the breed and the environment in which they are performing, an attempt is made in the present study to document the status of these animals and the farmer families maintaining them in breed tract.

A survey on socio-economic status of 500 Krishna Valley cattle owners was under taken from January to December 2008 in 116 selected villages spread over to 7 strata's of 2 districts (Bagalkot and Bijapur) in Karnataka where Krishna Valley animals were mostly found (Table 1). The cattle in the breed tract are generally maintained by extensive system of management and are occasionally fed with homemade mixed concentrate to only milking / pregnant animals. By and large, open system of housing is provided. Animals are vaccinated for epidemic diseases like FMD, black quarter and haemorrhagic septicemia. The breeding is largely by natural service. The data collected through survey were compiled, validated and analyzed using standard statistical

procedures (Snedecor and Cochran 1967).

More than three-fourth (80.27%) of total human population (2 782) maintaining Krishna Valley cattle in surveyed area was found distributed in Bagalkot district grouped into families of average 5.54 members / family while in Bijapur district remaining (19.73%) were found distributed in average family size of 5.66 (Table 2). The families in Bijapur district appeared to be more literate than those of

Table 1. District and strata wise number of villages and families surveyed

District	Tahsil	No. of villages	No. of farmers
Bagalkot	Badami	19	63
	Bilagi	05	47
	Jamakhandi	15	114
	Mudhol	50	176
	Ramadurga	03	03
Bijapur	Basavana Bagevadi	12	29
	Bijapur	12	68
	Total	116	500

Table 2. Education and family size status

District/block	No. of family members				Average family size
	Illiterate	Primary	Secondary	College & above	
Bagalkot	921	773	332	207	5.54
Badami	149	153	42	20	5.78
Bilagi	109	99	38	22	5.70
Jamakhandi	281	213	59	47	5.26
Mudhol	377	301	187	115	5.57
Ramadurga	5	7	6	3	7.00
Bijapur	154	189	112	94	5.66
Basavana Bagevadi	18	41	49	40	5.10
Bijapur	136	148	63	54	5.90
Grand total	1075	962	444	301	5.56
	(38.64)	(34.58)	(15.96)	(10.82)	

Figures in parenthesis indicate percentage.

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Table 3. Cattle shed

District/block	Kaccha	Pucca	Nil
Bagalkot	112	29	262
Badami	16	14	33
Bilagi	19	1	27
Jamakhandi	6	2	106
Mudhol	69	11	96
Ramadurga	2	1	00
Bijapur	33	11	53
Basavana Bagevadi	4	4	21
Bijapur	29	7	32
Grand total	145 (29)	40 (8)	315 (63)

Figures in parenthesis indicate percentage.

Bagalkot and overall 38.64% animal owners were illiterate, those having primary and secondary education were 34.58 and 15.96%, respectively while only 10.82% could reach to college level and above. The data on land holding status of the families revealed that 3.76% animal owners were landholders and remaining (24%) landless. The mean landholding per family was found to be 7.61 acres. The land holding of the families maintaining Khillar cattle as reported by Gokhale (2006) was similar. Average land holding was more in Bijapur district (13.00 acres) whereas fraction of landholders were more in Bagalkot district (60%). Irrigation source showed that among the land holders 92.37% farmers had irrigation facility either through well, bore well, lift or canal. 64.21% farmers had permanent irrigation facility and remaining (28.16%) were seasonally dependant on water resource. The extent of irrigation was larger in Bagalkot district (72.08%) compared to Bijapur (27.97%) district. Only

37% animal owners could provide housing (Table 3) to their animals while remaining 63% did not provide any shelter to their animals, reverse findings were reported by Gokhale (2006) for Khillar breed of cattle in Maharashtra which is also a draught breed and is also used in these districts for similar purpose. Nearly one-third owners (29%) provided *kaccha* type of cattle shed made by using wood, dried wheat straws, *bajra* stovers or cotton straws; only 8% families provided *pucca* type housing facilities constructed from either breaks, stones using clay as a cementing material or re-in-force cement concrete. Flooring of the housing is mostly *kaccha* type and made up of mud and stones. Majority of the respondents have their animal housed near their residence or as a part of it with half wall housing for the protection of animals from rains, wind and wild animals. The herd composition (Table 4) revealed that total Krishna Valley cattle found in the surveyed villages numbered only 546. Average herd size per farmer was 1.09 and ranged from 1.08 in Bijapur district to 1.10 in Bagalkot district. Majority of farmers (92.40%) maintained only 1 animal; small fraction (6.20%) had 2 animals while less than 2% (1.40%) owners maintained 3 animals. Age group and sex-wise distribution revealed that, 63% animals were breedable age (3 years and above). Comparable fraction of breedable population (65%) in Khillar cattle was reported by Gokhale (2006); 26.56% were young stock (1 to 3 years), 8.06% were calves 6 months to 1 year and 2.38% calves were below 6 months. Amongst the breedable population proportion of female and male was 47.98 and 15.02%, respectively. The animal population was highest (80.40%) in Bagalkot district. The mean male to female ratio in the breedable age group was 1:32. Wider male to female ratio indicated shortage of breeding bulls for

Table 4. Herd size and composition

District/block	Below 6 Mths		6 Mths to 1 Yr		1 to 3 Yrs		Females		Males			Total
	M	F	M	F	M	F	Heifers	Milking cows	Working bullock	Breeding bull	Working and breeding bull	
Bagalkot	3	3	16	19	57	62	53	167	52	1	6	439
Badami		1	3	3	11	4	4	26	13		1	66
Bilagi			1	3	8	7	11	12	5			47
Jamakhandi			5	9	11	23	7	43	22		1	221
Mudhol	3	2	7	4	26	28	31	85	11	1	4	202
Ramadurga					1			1	1			3
Bijapur	4	3	6	3	11	15	5	37	22		1	107
B. Bagevadi	1	2	2	1	1	5		7	14			33
Bijapur	3	1	4	2	10	10	5	30	8		1	74
Grand total	7	6	22	22	68	77	58	204	74	1	7	546
Age-wise distribution	2.38		8.06		26.56		47.98		15.02			
	1 animal				Herd size							
	462 (92.40)				2 animals				3 animals			Total
					62 (6.20)				22 (1.40)			546

Figures in parenthesis indicate percentage of respondents. M, Male; F, Female.

Table 5. Body coat colour

District/Block	Body coat colour					Grand total
	Ash	Black	Mix	Red	White	
Bagalkot	153	3	88	26	140	410
Badami	38		8	5	14	65
Bilagi	19		9		19	47
Jamakhandi	48	3	24		40	115
Mudhol	47		46	20	67	180
Ramadurga	1		1	1		3
Bijapur	19		38	2	44	103
Basavana Bagevadi	5		13	2	9	29
Bijapur	14		25		35	74
Grand total	172	3	126	28	184	513
	(33.53)	(0.58)	(24.56)	(5.46)	(35.87)	(100)

Figures in parenthesis indicate percentage.

criteria for look. The horn curvature having upward pointing tips seemed to be most favoured by K.V. breeders as 13.06% animals were of horn curvature of up word pointing tips (Table 6). The present findings collaborate with the finding in Khillar breed (Gokhale 2006). Curved horns were present in 43.69% animals, while 56.31% animals had straight horns. Sharpening and trimming of horn is practised to beautify the animals especially for cattle festival of the year (locally called “Bail Pola”). The classification of K.V. animals based on tail length was done according to position of tail i.e. whether the tail is above hock, at the hock, below hock or touching the ground (Table 7). Overall 66.08% animals had tail below hock level, 21.83% animals had tail touching the ground. 11.11% animals had tail at hock level and only 0.97% animals were of tail having above hock level. The percentage of animals having tail below hock level was similar to those with Khillar animals narrated by Gokhale, (2006). Ear

Table 6. Horn pattern

District/block	Status		Shape		Orientation						
	Absent	Present	Straight	Curved	Lateral pointing	Inward pointing	Upward pointing	Downward pointing	Forward pointing	Backward pointing	Yet to clear
Bagalkot	14	396	231	165	11	33	58	15	20	28	245
Badami	1	64	49	15			8	5		2	50
Bilagi		47	29	18		3	7	3	1	4	29
Jamakhandi	8	107	54	53	2	17	7	3	17	7	62
Mudhol	5	175	98	77	9	13	35	4	2	14	103
Ramadurga		3	1	2			1			1	1
Bijapur		103	50	53	16	7	9	4	8	9	50
B. Bagevadi		29	5	24	2	7	9		2	4	5
Bijapur		74	45	29	14			4	6	5	45
Grand total	14	499	281	218	27	40	67	19	28	37	295
%	2.73	97.27	56.31	43.69	5.26	7.80	13.06	3.70	5.46	7.21	57.50

breeding purpose. Almost all (99.20%) animal owners indicated that they maintain animals for milk which was used mainly for home consumption, dung as manure for agriculture land and sale of animals as and when need arises. Only 0.80% animal owners indicated that they are maintaining these animals for religious reasons.

Body parts and colour pattern: The body coat colour pattern and some phenotypic traits like horn pattern (shape and orientation), tail position and ear orientation were studied on 513 animals. Coat colour was noticed as ash, black, red, white and mix (Table 5). The proportion of animals of white coat colour was highest (35.87%) followed by ash (33.53%), mix (24.56%), red (5.46%) and black (0.58%). Krishna Valley breed specifications indicate that muzzle, eyes, hooves and tail switch are needed to be perfectly black. From market point of view, these qualitative characters have immense importance. Horn curvature pattern indicates the choice favoured by farmers from market point of view as selective

Table 7. Tail position and ear orientation

District/block	Tail position				Ear orientation	
	Above Hock	At Hock	Below Hock	Touching ground	Horizontal	Drooping
Bagalkot	5	48	303	54	354	56
Badami	1	4	58	2	56	9
Bilagi		1	36	10	30	17
Jamakhandi	3	15	62	35	105	10
Mudhol	1	28	144	7	160	20
Ramadurga			3		3	
Bijapur		9	36	58	88	15
B. Bagevadi		9	14	6	29	
Bijapur			22	52	59	15
Grand total	5	57	339	112	442	71
	(0.97)	(11.11)	(66.08)	(21.83)	(86.16)	(13.84)

Figures in parenthesis indicate percentage

Table 8. Body scoring marks

District/block	Body scoring marks													
	<50		51–60		61–70		71–80		81–90		91–99		100	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Bagalkot	108	84	106	80	92	79	50	81	35	50	13	22	6	14
Badami	8	7	22	18	22	14	7	16	2	7	1	2	3	1
Bilagi	6	6	20	17	15	6	6	11		6		1		
Jamakhadi	33	28	26	17	27	24	10	23	15	12	3	6	1	5
Mudhol	61	43	38	28	28	35	26	30	18	24	7	12	2	8
Ramadurga							1	1		1	2	1		
Bijapur	53	48	13	19	16	10	8	13	8	11	3	1	2	1
Basavana	13	14	1	2	4	1	3	7	6	4	2			1
Bagevadi														
Bijapur	40	34	12	17	12	9	5	6	2	7	1	1	2	
Grand total	161	132	119	99	108	89	58	94	43	61	16	23	8	15
%	15.69	12.87	11.60	9.65	10.53	8.67	5.65	9.16	4.19	5.95	1.56	2.24	0.78	1.46

position indicated that 86.16% animals had horizontal ears and remaining (13.84%) had drooping ears. Pawar (2002) reported 94.53% Khillar animals were of horizontal ears.

Classification of animals on body scoring marks: Phenotypic variation observed in field animals indicated deviation from the breed characters defined in literature. To know the extent of phenotypic purity of animals, marks were allotted to respective body parts giving due wattage in relation to importance of recognizing the breed. The marks allotted for K.V. animals were muzzle perfectly black 10, eye lid and eye ball perfectly black 15, neck region black 10, rump region black 10, thigh region black 10, hooves black 10, tail switch black 10, inner side of ears black 5, horns black 5, teats black 5, one third part of scrotum black 15 and vulva black 10. Based on these marks total 1 026 animals were scored and all these animals were divided into seven groups as animals having less than 50 marks, 51–60, 61–70, 71–80, 81–90, 91–99 and 100 (Table 10). The study results indicated that only 23 animals (15 females and 8 males) had 100 marks and as scored marks goes on increasing number of animals decreased.

SUMMARY

Study of 500 farmer families in the breed tract indicated that very few number Krishna Valley animals exist in the tract and are maintained by few farmer families. Comparatively poor socio-economic status of community accompanied by lower conditions, literacy and preference for maintaining this breed type indicate the capacity of these

animals to perform in hard. The variation observed during phenotypic type scoring indicated possible mixing of this breed with other cattle breeds. To save the breed from extinction, breed specific programmes for phenotypic purification of the mixed population need be taken up by genetic selection approach for conservation and improvement of this breed.

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