



Yak rearing systems among the Brokpas of the Eastern Himalaya in Arunachal Pradesh

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The yak is the most important livestock for Brokpa community of Monpa tribes that inhabits western most part of Arunachal Pradesh i.e. Tawang and West Kameng (Mody *et al.* 2015).

The economic development of the tribes depends on the productivity of this animal species due to the rare existence and non-adoptability of other livestock species and nearly impossible extensive agricultural crop production. Yaks are multi purpose animals that provide the herders with animal protein and fat in the form of milk and meat, as well as with draught power and manure. Milk is further processed into butter and skimmed milked cheese, dried or fermented and can be stored in these forms for months (Derville *et al.* 2010). With this background, a study was conducted on the system of rearing of yak in Arunachal Pradesh.

Two yak rearing districts namely West Kameng and Tawang districts were selected purposively for the study. Pastoralists (80) were randomly selected from the winter shelters purposively for the study. Nyukmadung, Mandala Phudung, Lubrang, Dirang areas were selected from West Kameng districts, whereas from Tawang district, Jang, Mukto, Tawang and Kitpi areas were selected for the study. Data were collected by personally interviewing the selected respondents with the help of a reliable and valid interview schedule and data were then, coded, tabulated and analyzed for meaningful conclusions.

System of rearing: The results (Table 1) showed that more than 78% of the farmers were feeding concentrates to their yak herds followed by 57.50% giving supplementary feeding to calves. Feeding of colostrums was done by 33.75% within 1–4 h of birth. Cent% of the respondents practiced natural service to yaks coming into heat, followed by cross breeding with local hill cattle (93.75%). Interestingly, Table 1 also revealed that 100% of yak herdsman in both West Kameng and Tawang district, practiced transhumance system of management. Castration of young bulls was practiced by 95%; 40% of them practiced weaning of calf. Around 39% of them reported

that grazing of yak herd was done for 9–12 hours in a day. Washing of hand was practiced by only 12.50% of the respondents. None of them sprayed insecticide or local herbal preparation in the sheds. Butter and Churpy were the main products made from yak milk reported by cent% and 93.75%, respectively. Similar findings were also reported by (Wangdi 2015). With respect to health care practices, treatment of sick animal was mainly by the paravets (88.75%) followed by local healers (81.25%) and veterinarians (23.75%). Timely vaccination and deworming was practiced by 37.50% and 28.75% respondents respectively.

Results (Table 1) further depicted the migratory patterns of the herdsman. Majority (97.75%) moved along with their family followed by along with other families (40%) and individually (25%) during migration from one place to another. Cent% of them stayed in the summer halt point for 1 to 3 months during migration. All reported climate variation as the major reason for migration followed by scarcity of fodder (97.50%), migration is an essential pattern of life (93.75%), migration is economical for yak husbandry (72.50%) and migration increases interaction with Yak owner (41%). Hostile weather and environment, diseases, rain, scarcity of food and payment of grazing tax to the land owners were the major constraints faced by the herdsman during migration.

Correlation analysis: Data in Table 2 revealed that the age of the respondents was positive and significantly related ($r=0.256^*$, $P<0.05$) to breeding and feeding of yaks ($r=0.303^{**}$, $P<0.01$). This might be for the reason that with the increase of age of the yak farmers they become more experienced in feeding and quality of breeding of yaks in the pastoralist society. Respondents family size was positive and highly significantly correlated to management of yaks ($r=0.360^{**}$, $P<0.01$). Larger the family size, easier will be management of yak herds in migration as one small groups of relatives (brothers and sons) can replace the migratory Brokpas if and when necessary in case of disease or some other family problems. Educational status was positive and significantly related ($r=0.281^*$, $P<0.05$) with health care indicating that higher the education better would be the health care of the yaks, as it was universally accepted fact

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that education has been a precursor to adoption of practices by the farmers. Decision making process was positive and highly significantly ($r=0.294^{**}$, $P<0.01$) related to management of yak and movement pattern of yak ($r=0.387^{**}$, $P<0.01$). In decision making process, management and movement pattern of yaks normally was a joint decision of the members of the family and community. Similarly movement pattern of yak was found to have relation with the social and cultural behaviour of the people and hence decision making process on movement of yak also depends on the tradition and culture of the people

of the area under study. Herd size was positive and significantly correlated ($r=0.221^{*}$, $P<0.05$) with feeding of yaks and management of yak ($r=0.381^{**}$, $P<0.01$). This might be because of fact that larger the herd size of the yak, herdsman will have to take care about his herd for bigger pasture and better feeding practices with feed supplement etc, as otherwise the herds might suffer from deficiencies of feeds and fodders. Annual income had positive and highly significant relationship with feeding of yaks ($r=0.386^{**}$, $P<0.01$) and breeding of yaks, ($r=0.321^{**}$, $P<0.01$) and was found to be significant with health care ($r=0.246^{*}$, $P<0.05$).

Table 1. Yak rearing systems

Variable	Area	West Kameng (30)	Tawang (50)	Pooled (80)
Feeding of yak	Supplementary feeding is given to calves and sick animals	19(63.33%)	27(54.00%)	46(57.50%)
	Feeding of concentrate is practiced (e.g. atta, salt, maize crush)	24(80.00%)	39(86.00%)	63(78.75%)
	Feeding of colostrums is done within 1–4 h of birth	12(40.00%)	15(30.00%)	27(33.75%)
	Fodder cultivation for feeding yaks	0(0.00%)	0(0.00%)	0(0.00%)
Breeding of yak	Timely detection of heat	16(53.33%)	23(46.00%)	39(48.75%)
	Natural service given to yaks coming into heat	30(100.00%)	50(100.00%)	80(100.00%)
	Cross breeding with local hill cattle	29(96.66%)	47(94.00%)	75(93.75%)
	Pregnancy diagnosis of the animal after service	5(16.66%)	7(14.00%)	12(15.00%)
	Culling of inferior animals	8(26.66%)	12(24.00%)	20(25.00%)
Management of yak	Rearing is done by transhumance system of management	30(100.00%)	50(100.00%)	80(100.00%)
	Grazing of yak herd is done for 9–12 hours/day	11(36.66%)	20(40.00%)	31(38.75%)
	Castration of young bulls	28(93.33%)	48(96.00%)	70(95.00%)
	Weaning of calf	14(46.66%)	18(36.00%)	32(40.00%)
	Washing of hands and udder before milking is practiced	4(13.33%)	6(12.00%)	10(12.50%)
	Spraying of insecticide or local herbal preparation in the sheds	0(0.00%)	0(0.00%)	0(0.00%)
	What are the different types of milk product prepared			
	a. Butter	30(100.00%)	50(100.00%)	80(100.00%)
	b. Churpy	27(90.00%)	48(96.00%)	75(93.75%)
	c. Other products	16(53.33%)	29(58.00%)	45(56.25%)
Health coverage	Timely vaccination	12(40.00%)	18(36.00%)	30(37.50%)
	De-worming	7(30.00%)	14(23.00%)	23(28.75%)
	Treatment of disease is done by			
	a. Veterinarian	10(33.33%)	9(18.00%)	19(23.75%)
	b. Para vets	28(96.33%)	43(86.00%)	71(88.75%)
	c. Traditional healers	21(70.00%)	44(88.00%)	65(81.25%)
Migratory pattern of yak herdsman	A. Movement pattern of Brokpas			
	Move individually	8(26.66%)	12(24.00%)	24(25.00%)
	Move with family	28(93.33%)	47(94.00%)	75(97.75%)
	Move with groups of families together	11(36.66%)	21(42.00%)	32(40.00%)
	B. Duration of stay in summer halt point during migration			
	Up to 1 month	0(0.00%)	0(0.00%)	0(0.00%)
	1–3 months	30(100.00%)	50(100.00%)	100(100.00%)
	3 months and above	12(43.33%)	17(34.00%)	29(36.25%)
	C. Reason of migration			
	Scarcity of fodder	28(93.33%)	50(100.00%)	78(97.50%)
	Migration is economical for Yak husbandry	15(50.00%)	43(86.00%)	58(72.50%)
	Migration increases interaction with Yak owner	13(43.33%)	28(56.00%)	41(41.00%)
	Migration is an essential pattern of life	29(96.66%)	96(92.00%)	75(93.75%)
	Variation in climate	30(100.00%)	50(100.00%)	80(100.00%)
	D. Constraints during migration			
	Diseases	21(70.00%)	32(64.00%)	53(66.25%)
	Rain	21(70.00%)	32(64.00%)	53(66.25%)
	Scarcity of food	12(40.00%)	22(44.00%)	34(42.25%)
	Payment of grazing tax to the land owners	11(36.66%)	24(48.00%)	35(43.75%)
	Hostile weather and environment	22(73.33%)	43(86.00%)	65(77.50%)

Table 2. Correlation analysis between independent and dependent variables (system of rearing)

Independent variables	Dependent variables						
	Feeding of yak	Breeding of yak	Management of yak	Health coverage of yak	Movement pattern of yak	Duration of stay in summer halt point	Reason for migration
Age	0.256*	0.303**	0.039	0.015	0.01	0.075	0.004
Family size	0.143	0.212	0.360**	0.203	0.142	0.157	0.191
Educational qualification	0.119	0.197	0.03	0.281*	0.009	0.046	0.138
Decision making process	0.018	0.203	0.294**	0.073	0.387**	0.212	0.148
Herd size	0.221*	0.188	0.381**	0.199	0.194	0.012	0.211
Annual income	0.386**	0.321**	0.128	0.246*	0.13	0.08	0.203
Social participation	0.193	0.166	0.143	0.066	0.038	0.08	0.065
Extension agent contact	0.030	0.201	0.231*	0.321**	0.19	0.168	0.171
Mass media exposure	0.165	0.215	0.128	0.046	0.045	0.034	0.137

** Correlation is significant at 0.01 level probability, * Correlation is significant at 0.05 level probability.

From this study, it can be concluded that, higher the earnings, higher will be the income from yak. The Brokpas will go for better feeding and breeding practices in yak hoping to get more income by doing so. Extension contact had positive and highly significant relationship with management ($r=0.231^*$, $P<0.05$) and health care of yak ($r=0.321^{**}$, $P<0.01$). This is a fact that higher the extension contact better will be the management and health care practice of the Monpa pastoralist because extension contact exposes the respondents to different better practices like management and health care.

SUMMARY

The study was carried out to understand the transhumance system of yak rearing in West Kameng and Tawang districts of Arunachal Pradesh through the interview of 80 yak pastoralists. Majority (78.75%) of the Brokpas, practiced concentrate feeding to their yak herds. Cent% of yak herdsman practiced natural services and transhumance system of rearing management. Majority (88.75%) of yak herdsman reported disease animal being treated by para vets. Majority (97.75%) of yak herdsman move with family during the time of migration. Majority (77.50%) of the respondents stated hostile weather and environment as a major constraint during migration. Socio personal, economic and communicational characteristics viz. age, family size, annual income, mass media exposure etc had

positive and significant relationship with the rearing practices of the Monpa pastoralist.

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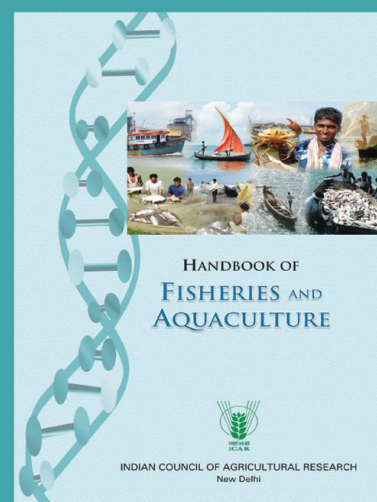
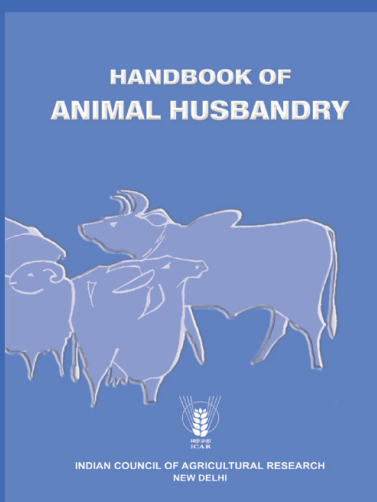
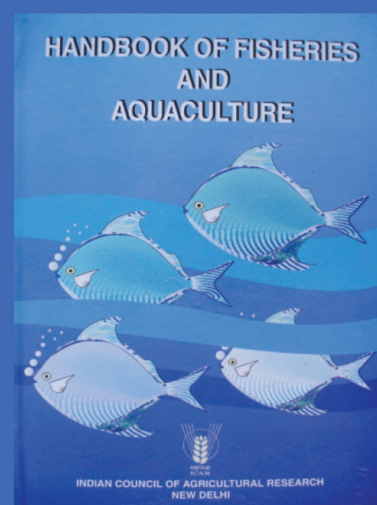
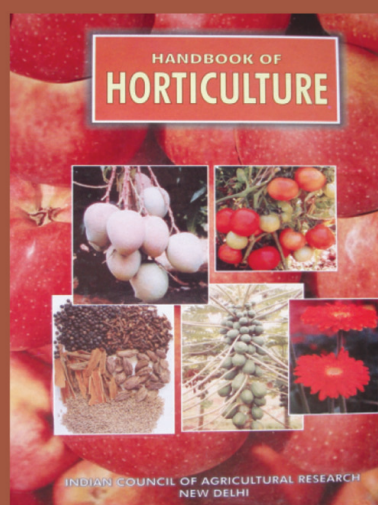
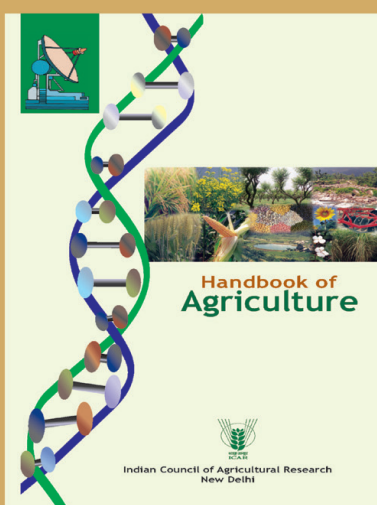
REFERENCES

- Derville M and Bonnemaire J. 2010. Marginalisation of yak herders in bhutan: can public policy generate new stabilities that can support the trans-formation of their skills and organisations? And bonds to territories: a case study in france and brazil. Emilie coudel, hubert devau-tour, Christophe-Toussaint SOULARD, Bernard HUBERT. ISDA, Jun 2010, Montpel-lier, France, Cirad-Inra_SupAgro, 10p.
- Mody D R Philip, Gombu T and Abo T . 2015. Traditional management of yak among Brokpas of arunachal pradesh. *Journal of Radix International Educational and Research Consortium* 4 (1): 1–10.
- Wangdi J. 2015. Milk quality from Yak and Zom milk in Bhutan. *Livestock Research for Rural Development* 27 (2). <http://www.lrrd.org/lrrd27/1/wang27002.html>.
- Nutritional Requirement of Yak and Mithun. 2013. ICAR, New Delhi: pp – 1–13.



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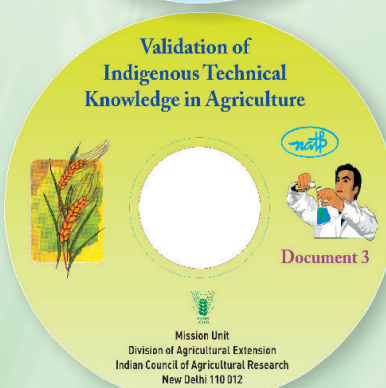
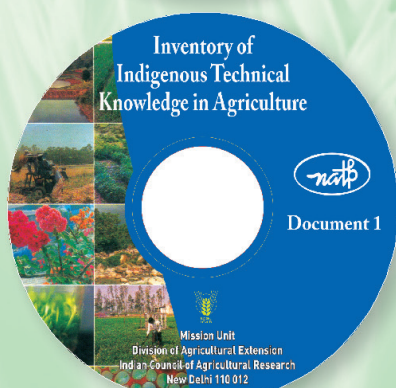
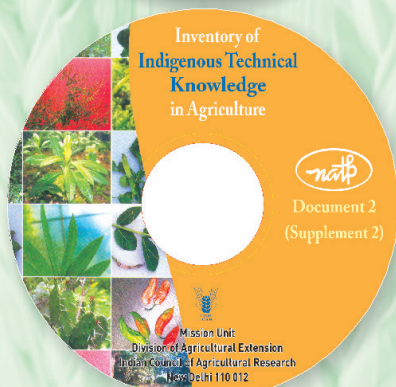
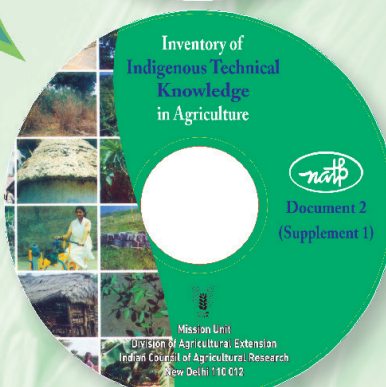
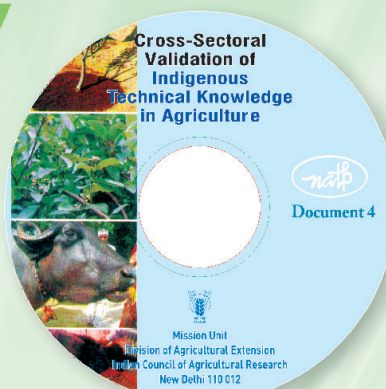
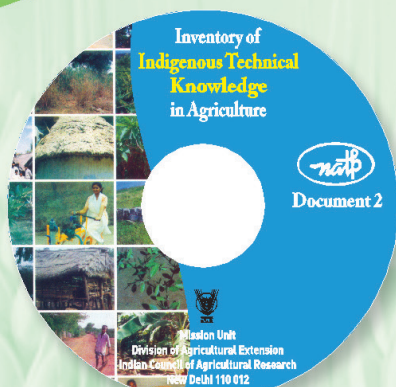


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