

PREFERENTIAL TRAITS FOR REARING INDIGENOUS CATTLE UNDER LOW INPUT PRODUCTION SYSTEM IN KARNATAKA

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Abstract: Preferred traits in indigenous cattle as perceived by resource poor farmers under low input production system were studied in different breeding tracts of six indigenous cattle breeds (Amritmahal, Deoni, Hallikar, Khillari, Krishna Valley and Malnad Gidda) of Karnataka. Data was collected personally using semi-structured interview schedule from 240 farmers covering 40 farmers owning at least two adult indigenous cattle from each of the 06 districts. The results showed that less input requirements, high adaptability to harsh tropical climate, resistant to disease, ease of feeding and manure production ability using low quality roughages, considered as important traits for rearing indigenous cattle revealed by resource poor farmers irrespective of the six selected districts. Resource poor farmers, considering multiple traits while rearing of indigenous cattle unlike prosperous farmers prefer to keep the high producing improved crossbred cattle. Resource poor livestock farmers prefer to keep the cattle which were locally adapted, disease resistant and able to produce under low input production than the input intensive crossbred cattle. So, livestock development programmes need to be targeted to resource poor farmers, to improve the productivity of indigenous cattle through selective breeding with superior sires of local cattle than crossbreeding with exotic cattle.

Keywords: Indigenous cattle, Preferential traits and Resource poor farmers,

INTRODUCTION

Indian sub-continent is well known for its diversity of culture, custom, people, tradition and language *etc.*, and one of the biggest biodiversity hot-spot in the world. India has rich and diverse cattle genetic resources, as evident from the availability of 39 well defined cattle breeds distributed in different agro-climatic zones (NBAGR, 2015). India ranks 1st in the world in terms cattle population by comprising of 190 million cattle heads (Livestock Census, 2012). Livestock development policies, programs, schemes and initiatives *etc.*, mainly promote rearing improved crossbred cattle for higher milk production. In spite of efforts by different agencies *viz.*, Department of Animal Husbandry Dairying and Fisheries (DAHD&F), State Department of Animal Husbandry (SDAH), National Dairy Development

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Board (NDDB), Non-Government Organizations and state livestock development agencies *etc.*, 80 per cent of the Indian cattle population belong to indigenous group (GOI, 2014). Over 70 per cent of the Indian rural households own livestock (Ahuja and Redmond, 2001) and indigenous/non-descript cattle forms an important component livestock holding of resource poor farmers. Indigenous cattle are robust, well adapted to tropical climate and play crucial role in the livelihood of resource poor farmers through supply of draught animal power, milk, cow dung and cow urine (GOI, 2014). Keeping above facts in background, present study was conducted to explore the preferred traits/reasons for rearing the indigenous cattle by resource poor farmers of Karnataka.

MATERIALS AND METHODS

An exploratory research design was employed to ascertain the farmers perceived preferences for different traits in indigenous cattle. There are six registered cattle breeds in Karnataka *viz.*, Amritmahal, Deoni, Hallikar, Khillari, Krishna Valley and Malnad Gidda (NBAGR, 2015). One district was selected from the breeding tract of each indigenous cattle breed namely, Chikmagalur, Bidar, Mandya, Belagavi, Bagalkote and Shivamogga districts, respectively. From each of the selected district, one block was randomly selected, from each block, four village panchayats and from each village panchayat, 10 farmers, engaged in indigenous cattle rearing were randomly selected as the respondents. A final sample comprised 240 respondents. Pre-tested, semi-structured interview schedule was employed in data collection. Preferences in rearing indigenous cattle were assessed on three point continuum *viz.*, 'Most Important' 'Important' and 'Least Important' with respective scores of 3, 2 and 1. Summation of score achieved by the respondents was considered as the extent of their preference. Assessed preferences were ranked based on obtained mean score for each of the preference.

$$\text{Mean score of preferences} = \frac{\text{Most Important} \times 3 + \text{Important} \times 2 + \text{Least Important} \times 1}{\text{Number of respondents}}$$

RESULTS AND DISCUSSION

Preferences in rearing indigenous cattle as perceived by farmers

Data was collected on 12 statements on three point continuum by direct questioning to the respondents to reveal their preferences on each of the statement with respect to the rearing indigenous cattle. Table 1 indicates that least requirement of inputs, high adaptability to harsh environment, disease resistance, draught power and manure production ability were the top preferences and ranked I, II, III, IV and V respectively by majority of the farmers. Rearing

indigenous cattle by resource poor farmers acts as supplementary income earning source and complements the agricultural production by supply of manure and draught power with low inputs were the preferred traits. Pooled data further indicates that nearly 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%). According to respondents', except Malnad Gidda breed, other five indigenous cattle breeds were mainly preferred because of their draught power ability whereas Malnad Gidda breed was kept for manure production. Karnataka stands second after Rajasthan in terms of area prone to drought, wherein, major agricultural area rely on rain (GOK, 2013; FAO, 2009). In the year 2016, 98 *talukas* of the state were declared drought affected out of 177 *talukas*, whereas, 135 *taluks* were declared as drought affected in the year 2015 (KSNDMC, 2015). The deficit in rainfall leads to scarcity for drinking water, feed, fodder and enhanced temperature stress, thus under such conditions, only sturdy indigenous cattle and locally adopted livestock species could survive and produce. Indigenous cattle can be taken out for grazing even during hot summer conditions, ease of feeding, dual purpose (milk and draught power), traditional or cultural sentiment attachment *etc.*, were other traits mainly associated with indigenous cattle that influence the resource poor farmers to rear them. Similar findings were reported by different researchers (Chenyambuga and Lekule (2014); Siddiquee *et al.*, (2013); Radder *et al.*, (2010) wherein ease of feeding, draught animal power, disease resistance, adaptability, quality of milk, economic benefits and cultural needs were the main preferred traits in indigenous cattle that influence the farmers to keep indigenous cattle. According to Perry *et al.* (2005) cattle fulfills the multiple needs of the farming community through milk, manure, draught power, income, insurance and as asset value and these facts were also evident from the present findings.

CONCLUSION

Resource poor farmers keeping indigenous cattle mainly for multiple utility that included draught animal power for agricultural operations, manure production for fertilizing agriculture field, milk production for household consumption, as a source of supplementary income by sale of cattle or products derived from it namely milk, manure, draught animal power, calves and hired carting *etc.* Resource poor farmers consider multiple traits in indigenous cattle while selection wherein milk productivity was not the main criteria but consider the multiple utility in cattle rearing. On the other hand, livestock development

agencies promote keeping crossbreed/improved cattle breeds, mainly to improve the milk production and other roles were grossly ignored. Here it is to be emphasized that livestock development agencies also need to focus on the improve the productivity per indigenous cattle by supply of quality inputs, package of practices, integrated veterinary services, organized markets and need base extension advisory services. So, livestock development programmes that are targeted to resource poor farmers will improve the productivity of indigenous cattle through selective breeding with superior sires of indigenous cattle than crossbreeding with exotic cattle.

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Table 1: Preferential traits revealed by resource poor farmers in rearing indigenous cattle

Preferential traits in indigenous cattle	Districts (Breeds)												Pooled					
	Chikmagaluru (Amritmahal)		Bidar (Deoni)		Mandya (Hallikar)		Belagavi (Khillari)		Bagalkot (Krishna Valley)		Shivamogga (Malnad Gidda)							
	MS	Rank	MS	Rank	MS	Rank	MS	Rank	MS	Rank	MS	Rank	MI <i>f</i> (%)	I <i>f</i> (%)	LI <i>f</i> (%)	TS	MS	Rank
Can be acquired at lesser price	1.78	XII	2.15	VIII	2.28	IX	1.90	IX	2.08	XI	2.50	V	88 (36.67)	91 (37.92)	61 (25.42)	507	2.11	X
Required less input in maintenance	2.60	III	2.90	I	2.68	II	2.50	IV	2.58	IV	2.60	IV	154 (64.17)	86 (35.83)	0 (0.00)	634	2.64	I
Easy to feed/graze	2.55	V	2.70	V	2.45	V	2.35	V	2.13	X	2.60	IV	123 (51.25)	105 (43.75)	12 (5.00)	591	2.46	VI
Dual purpose utility	2.38	VIII	2.90	I	2.33	VII	1.90	X	2.33	VII	2.00	VIII	117 (48.75)	79 (32.92)	44 (18.33)	553	2.30	VII
Mainly manure production	2.70	II	2.80	III	1.65	XII	2.20	VII	2.65	II	2.88	I	144 (60.00)	67 (27.92)	29 (12.08)	595	2.48	V
Disease resistant	2.40	VII	2.40	VII	2.58	III	2.60	I	2.55	V	2.80	II	133 (55.42)	107 (44.58)	0 (0.00)	613	2.55	III
High adaptability to harsh tropical climate	2.45	VI	2.75	IV	2.48	IV	2.55	II	2.65	III	2.68	III	142 (59.17)	98 (40.83)	0 (0.00)	622	2.59	II
Draught animal power	2.88	I	2.80	III	2.88	I	2.53	III	2.85	I	1.38	X	166 (69.17)	40 (16.67)	34 (14.17)	612	2.55	IV
High reproducing ability	2.25	IX	2.40	VII	2.40	VI	1.83	XI	2.35	VI	2.60	IV	98 (40.83)	117 (48.75)	25 (10.42)	553	2.30	VII
Religious/cultural sentiments	1.80	XI	1.80	IX	2.15	X	1.80	XII	1.73	XII	2.30	VII	61 (25.42)	101 (42.08)	78 (32.50)	463	1.93	XI
Milk and milk products	2.05	X	2.88	II	2.00	XI	2.30	VI	2.18	IX	2.40	VI	114 (47.50)	84 (35.00)	42 (17.50)	552	2.30	VIII
Income generation purpose	2.58	IV	2.50	VI	2.33	VIII	2.05	VIII	2.30	VIII	1.58	IX	101 (42.08)	91 (37.92)	48 (20.00)	533	2.22	IX

Figures in parenthesis indicate percentages

MI: Most Important, I; Important, LI: Least Important, MS: Mean Score, TS: Total Score, *f*: Frequency.