DEVELOPMENT OF A SCALE TO MEASURE THE ATTITUDE OF CATTLE KEEPERS TOWARDS THE CONSERVATION OF NATIVE CATTLE

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Abstract

Attitudes are constructs which are crucial in enhancing our understanding of the motives behind decisions of people as well as the reasons behind the way in which they behave. Quantitative methods help research workers to make comparisons of the conservation attitude of one cattle keeper with that of another and to describe, analyze and even explain cattle keeper behaviour by correlating variables with each other and extrapolating the results to a larger population. In was in this context that the present study was undertaken to construct a scale to measure the attitude of keepers of Kasargod cattle towards native cattle. In the present study, attitude was conceptualized as an important determinant of the respondent's behaviour in conserving the Kasargod cattle. A scale to measure the attitude of keepers of Kasargod cattle towards native cattle was developed by the Lickert method of summated ratings. The final format of the scale consisted of twenty statements (Table 1) with the highest 't' values. The scale can be administered to a target population on a three-point continuum viz., agree, undecided, disagree with scores of 3, 2 and 1 in the cases of positive statements and the reverse in the case of negative statements.

Key words : *Attitude, Cattle keepers, Native cattle*

Rapid growth in population as well as increased demand for more milk and milk products put pressure on production systems all over the world as well as Kerala, to explore alternate means of increasing milk production through crossbreeding. In this process, native breeds have been displaced by intensively selected breeds and their high input – high output production systems. However, many native breeds survived this process, especially in areas where high input high output systems were not established for economic, cultural or environmental reasons. In recent years, scientists, policy makers and farmers have recognized the important environmental, social, cultural, market and public values of the native cattle breeds. The Kasargod dwarf cattle are a native breed of cattle found in Kasargod, the northern most district of Kerala. These animals are of the dwarf type, with a uniform coat of

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black and varied shades of red (http://www.vechur.org/Kasargod.html).

Scientists as well as policy makers now recognize the need to understand the motives of Kasargod dwarf cattle keepers in order to develop well oriented policies and strategies for preserving all the values related to the maintenance of this breed as well as sustaining farming systems that are capable of maintaining the vigour and the potential to fulfil all conservation aims in this area.

Despite decades of research on farmer behaviour there still remains a need to redefine the theoretical base of what motivates the participation of farmers in agri-environmental programmes. It remains unsaid that there is a continuous need for further research to understand what motivates farmers to undertake conservation activities in order to improve existing programmes for addressing various issues in the agricultural landscape. There is longstanding literature on the relationship between attitudes, intentions and behaviour.

The theory of planned behaviour suggests that the most important determinant of a person's behaviour is his/her intention to engage in that behaviour which is in turn influenced by attitudes, subjective norms and perceived behavioural control (Fishbein and Ajzen, 2010). The attitude behaviour relationship in the context of farmers' conservation behaviour and attitudes was found to be a prime predictor of farmer conservation behaviour (Padel, 2001). However, scales to make a measure of these attitudes are conspicuous by their absence. Keeping in mind the aforesaid facts the present study was undertaken with the objective of developing a scale to measure the attitude of keepers of cattle towards the conservation of native cattle.

Materials and Methods

Kasargod is the northern most among the districtsof Kerala. It is from this district that the Kasargod cattle have been reported. From among the four blocks in the district Manjeswaram block was selected in the first stage of sampling since it had the highest population of indigenous cattle. In the second stage of sampling, panchayats were taken as the sampling units and from the 12 panchayats in Manjeswaram block two panchayats *viz .,* Badiyadka and Enmagaje were selected by the procedure of simple random sampling. Snowballing was resorted to after initial identification of farmers with key informants, panchayat officials and local veterinary surgeons so as to identify a preliminary set of 15 farmers and a final set of 32 farmers for various stages involved in the preparation of the scale. At all times it was ensured that farmers included in one stage were not included in the next stage so as to eliminate any error due to recall.

Attitudes are constructs which are crucial in enhancing our understanding of the motives behind decisions of people as well as the reasons behind the way in which they behave(Winter *et al.* 2005). Constructs cannot be observed directly or indirectly, rather they are creations from theory based on observations(Babbie and Mouton, 2001). Further, attitudes towards conservation of specific breeds of cattle or vegetation are made up a collection of various aspectsor dimensions of attitude. It is possible to operationalise constructs in empirical research by making them measurable or observable using composite measures such as indexes and scales. Measures that combine several unique characteristics of a construct to a single score are referred to as indices while scales are tools designed to capture various aspects of a construct such as the intensity, direction, level etc of the construct. Further, the scale is inbuilt with a system to depict the responses obtained on a continuum so as to capture different shades of the variable.(Babbie and Mouton, 2001). While behaviour can be seen, attitudes cannot be observed, they are however measureable.(Grey, 2002). Attitudes can be measured directly by asking respondents to report their beliefs or evaluations, or indirectly by studying responses believed to be related to attitudes (Bohner and Wanke, 2002).Attitudes can be directly measured by using scales with a single item that has a numeric response or by

using a multi item scale such as the frequently employed Likert scale (Likert, 1932).Single items have a significant drawback in that their reliability is low or difficult to assess (Winter *et al.* 2005) whereas multiple-item indicators of attitudes can improve the ability of attitudes to predict behaviour.

Research workers are definitely interested in qualitative attitude surveys since these can be used for providing the correct context so as to complement quantitative data. Thus there is a need to have a means to express theresults of a field study either in an index or scale format for systematic conservation assessment and planning (Winter *et al.* 2005). Further, these quantitative methods help research workers to make comparisons of the conservation attitude of one cattle keeper with that of another and to describe, analyze and even explain cattle keeper behaviour by correlating variables with each other, integratingquantitative Geographic Information Systems (GIS) data and extrapolating the results to a larger population.

In was in this context that the present study was undertaken to construct a scale to measure the attitude of keepers of Kasargod cattle towards native cattle In the present study, attitude was conceptualized as an important determinant of the respondent's behaviour in conserving the Kasargod cattle. A scale to measure the attitude of keepers of Kasargod cattle towards native cattle was developed by the method of summated rating as proposed by Likert, (1932) in the following steps:

Collection of attitude statements or the universe of content:

A total of forty-seven statements reflecting the attitude of Kasargod cattle keepers towards native cattle conservation were prepared after interviewing as well as conducting focus group discussions among 15 native cattle keepers in Kasargod districtand conducting discussions with the subject matter specialists, besides review of literature. Care was taken to cover all the relevant aspects of the subject and to include respondents who would not be part of the final study.

Editing of statements:

The statements were edited based on the fourteen criteria as suggested by Edwards and Kilpatrick (1946).

Item analysis:

All the edited statements were then administered to the second set of 32 cattle keepers who reared Kasargod cattle. The group consisted of randomly selected members and was altogether different from the respondents chosen for the final study. These cattle keepers were asked to indicate their degree of favourableness or unfavourableness towards each statement on a three point continuum *viz.,* agree, undecided and disagree. The scores assigned in the case of positive statements were 3, 2 and 1 respectively for agree, undecided, disagree and the scoring pattern was reversed in the case of negative statements. The attitude score for each respondent was obtained by summing up the weightage given for each statement.

Determining the directionality:

The attitude statements included both positive and negative statements and the directions of the statements were checked by using the procedure of normal deviate weightings.

Determination of 't' values:

The scores of various respondents were arranged in descending order. Twenty five percent of the respondents with the highest scores and twenty-five percent of the respondents with lowest scores were taken for calculating't' values. These two groups formed the criterion groups designated as the high group and low group respectively and formed the basis for evaluating the individual statements. 't' values were calculated using the formula,

$$t = \frac{\overline{X}_H - \overline{X}_L}{\sqrt{\frac{\varepsilon(X_H - \overline{X}_H)^2 + \varepsilon(X_L - \overline{X}_L)^2}{n(n-1)}}}$$

Where,

$\bar{X}_H$ = the mean score on a given statement for the high group.

$\bar{X}_L$ = the mean score on the same statement for the low group.

n = the number of subjects in each of the criterion groups

The 't' value indicated the extent to which a given statement differentiated between the high and low groups. These 't' values were arranged in descending order and 20 statements with highest 't' values were included in the final scale (Table 1). The't' values of all the 47 statements are given Table 1. The final format of the scale consisted of twenty statements with highest 't' values.

Reliability of the scale

Reliability is the precision or accuracy of a measuring instrument. It is the frequency with which a scale produces consistent results with a sample. Reliability of the scale was tested by using the split-half method and applying Rulon's formula, $r = \sigma^2d / \sigma^2t$

where,

σ^2d = variance of the difference between the sum of the scores of odd statements and sum of the scores of the even statements

σ^2t = variance of the total scores obtained by summing the scores of odd statements and even statements

A reliability coefficient of 0.896 was obtained. This indicated high internal consistency of the instrument testifying that it had a high reliability.

Results and Discussion

The final format of the scale consisted of twenty statements (Table 1) with the highest 't' values. The scale can be administered to a target population on a three point continuum *viz.,* agree, undecided, disagree with scores of 3,2 and 1 in the cases of positive statements and the reverse in the case of negative statements. The total score of a respondent can then be computed by summing up the scores for each statement depending on his/her response to each statement.

Table No 1. : 't' values of attitude statements

Sl. No	Item Statements	t- value
1	I feel that there should be policies to promote native cattle rearing.	1.00 *
2	Native cattle are a valuable part of our heritage.	1.334*
3	I will engage in keeping native cattle in order to propagate it.	0.403
4	An effective partnership between research institutions such as veterinary university and self government bodies would be a beneficial measure to conserve native cattle.	-0.607
5	The good temperament of native cattle makes it worth keeping.	2.717*
6	I keep native cattle because I can have high esteem in my society.	0.917
7	I keep native cattle as I can get more benefit when compared to cross bred cattle.	0.871
8	I rear native cattle as these animals are cheaper to acquire as compared to crossbred cattle.	0
9	I will quit keeping native cattle if given an opportunity to rear crossbred cattle.	1.07*
10	I think it is not worth keeping native cattle.	0.942
11	I feel that the government should withdraw the blanket policy of cattle breeding.	1.128*
12	We must ensure the availability of native cattle to the future generations.	1.528*
13	Keeping native cattle facilitates organic farming.	-1.0

14	Conservation of native cattle is necessary to ensure the survival of these animals.	-1.128
15	Public spending on conservation of native cattle is a waste and should not be encouraged.	0.314
16	I feel that conservation of native cattle can succeed only if local people play a more active role.	3.121*
17	I prefer to keep native cattle since it provides for the family needs of milk and milk products.	0.858
18	I feel that the government must promote native cattle shows.	1.426*
19	Native cattle do not require special care since they are climatically adapted.	1.334*
20	Local self-government bodies should initiate more programmes that promote the conservation of native cattle.	2.049*
21	It is not worth keeping native cattle as they produce less milk.	0
22	I do not plan to keep native cattle as it will not be profitable.	2.497*
23	I prefer to expand my farm by adding more number of native cattle.	0.284
24	I do not prefer to keep native cattle as banks will not support it financially.	0
25	I prefer keeping native cattle since their products fetch more price.	1.21*
26	Native cattle are an indispensible part of the cultural life of my community.	0
27	I consider conserving native cattle as my duty.	0.403
28	I like to keep native cattle in spite of my inconveniences.	1.429*
29	Native cattle keeping is profitable due to increased consumer demand for the products of native cattle.	1.44*
30	I believe native cattle farming is more a way of life rather than a business.	1.426*
31	Conservation of native cattle should be a matter of concern to the local self government bodies.	0
32	Native cattle conservation is a way to preserve traditional values.	1 *
33	Consumption of native cattle products will ensure better quality of life to my family.	0.942
34	Conserving native cattle will not improve my living standard.	2.828*
35	I do not believe native cattle keeping offer any benefits.	0
36	Conserving natural resources can assure a safer world to live.	-1.528
37	When millions require better nutrition it is illogical to rear native cattle.	0.966
38	I feel that there should be more programmes from the Panchayath exclusively for native cattle.	0
39	Native cattle keeping can be taken up as a commercial venture.	1.616*
40	Those who conserve native breeds of cattle must be rewarded.	0.858
41	Breeding facilities exclusively for native cattle must be introduced.	1 *
42	Local Government involvement in conservation of native cattle should be there.	0.599
43	Slaughter of native cattle for beef must be discouraged.	0.851
44	I think Government should start a native cattle farm in its original breeding tract	-1.07
45	There should be more government initiated awareness programmes to promote conservation	0
46	It would be good to create a breed society exclusively for native cattle	0.607
47	Keeping native cattle can be an advantageous subsidiary occupation	2.16*
	**Selected statements*	

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