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A scale to measure the attitude of tribal women towards commercial horticulture in Nilgiris district, Tamil Nadu

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ABSTRACT

Attitude of an individual determines one's knowledge gain about any technology and its acceptance, adoption, continuance and rejection as well. It also has a bearing with other requirements associated with the technology ie the psychological object under consideration. This study was designed to develop a scale to measure the attitude of tribal women of the Nilgiris district, Tamil Nadu towards commercial horticulture. Edward's equally appearing intervals scale was adopted to develop the scale. The final scale comprised of nine statements. This scale was standardized for administration.

Keywords: Attitude; tribal women; commercial horticulture; scale

INTRODUCTION

The Nilgiris district is the horticulture hub of south India. Commercial horticulture is a significant and upcoming sector in the Nilgiris district. Horticulture has proved to be the best diversification option for agricultural land use because of assured and the remunerative returns to the tribal farmers. Many non-governmental organizations are coming forward to engage the tribal women in commercial horticulture so as to earn a good living. As the tribal women are new to the sector of commercial horticulture an attitudinal study was conducted on 180 tribal women with farming background for assessing their attitude towards commercial horticulture. An attitude scale was developed by using equal appearing interval method.

METHODOLOGY

Computation of attitude scale: The scale was constructed by following 'equal appearing interval' scaling technique developed by Thurstone and Chave (1929). For the purpose of the study attitude was operationalised as the mental disposition of the tribal women about commercial horticulture in varying degrees of favourableness or unfavourableness. Possible

statements concerning the psychological object 'Commercial Horticulture' with respect to the psychological and economical domains were collected based on review of literature and discussion with scientists and extensionists. In total 83 statements were collected which were organised and structured in the form of attitude items.

The items were screened by following the informal criteria suggested by Edwards (1969) for editing the statements to be used in the construction of the attitude scale. Based on the screening 65 items were selected which formed the universe of the content. The 65 statements were then subjected to judges' opinion on a five-point continuum ranging from most unfavourable to most favourable. The list of statements was sent to 65 judges who comprised of extension specialists of state agricultural universities of Tamil Nadu, Kerala, Andhra Pradesh and Karnataka and Gandhigram Rural University. Of the 65 judges 40 judges responded by sending their judgments. Based on the judgments the scale and 'Q' values for each statement were calculated by applying the equal appearing scale Interval formula as suggested by Thrustone and Chave (1929).

$$S = l + \left[0.50 - \frac{\Sigma pb}{pw} \right] i$$

where

S= The median or scale value of the statement

L= The lower limit of the interval in which the median falls

Σpb= The sum of the proportions below the interval in which the median falls

Pw= The proportion within the interval in which the median falls

I= The width of the interval assumed to be equal to 1.0

$$Q = C_{75} - C_{25}$$

where

Q= Interquartile range

C_{75}= the 75th centile,

$$C_{75} = l + \left[0.75 - \frac{\Sigma pb}{pw} \right] i$$

C_{25}= the 25th centile,

$$C_{25} = l + \left[0.25 - \frac{\Sigma pb}{pw} \right] i.$$

The computed scale and Q values are tabulated in Table 1.

Selection of attitude items: The attitude items to be included in the final attitude scale were selected based on the distribution of scale values uniformly along the psychological continuum and high scale values and smaller 'Q' values. The scale values were arranged in descending order of magnitude and the difference between the successive scale values and the cumulative total of the computed differences were worked out. Considering the time limitation from tribal women's point of view it was decided to select nine statements to constitute the attitude scale. Since the selected scale values should have equal appearing interval and should have distributed uniformly along the

psychological continuum it was necessary to form nine compartments so as to select nine statements with one statement from each compartment. The basis for forming the compartments was that each compartment should be equally spaced in the continuum. For this purpose (Table 1) the difference between the highest scale value (4.667) and the lowest scale value (2.5) was worked out. The difference value (0.093) was divided by nine. This formed the width of the first class interval. The second interval was worked out by adding the value 0.093 with the width of the first class interval (0.48). Adding the value 0.093 with the width interval of second class (0.48) gave the third interval (0.72). Subsequently all the nine intervals were worked out. Each class interval represented a compartment for the selection of the attitude items. For example the value 0.317 is close to 0.24 of the cumulative value of difference. So this formed the first compartment and similarly nine compartments were worked out.

Table 1. Computation of equal appearing intervals

S/N	Statement number	Scale value	'Q' value	Difference between successive scale values	Cumulative value of the differences	Equal appearing class intervals	Compartments
1.	19	4.667	1.139	-	-	-	-
2.	43	4.667	1.968	0	0	-	-
3.	17	4.574	1.173	0.093	0.093	-	-
4.	61	4.557	1.123	0.017	0.11	-	-
5.	18	4.53	1.227	0.027	0.137	-	-
6.	51	4.35	1.207	0.18	0.317	0.24	I
7.	11	4.311	1.284	0.039	0.356	-	-
8.	20	4.311	1.284	0	0.356	-	-
9.	29	4.311	1.284	0	0.356	-	-
10.	52	4.311	1.284	0	0.356	-	-
11.	34	4.3	1.482	0.011	0.367	-	-
12.	37	4.291	1.166	0.009	0.376	-	-
13.	38	4.287	1.12	0.004	0.38	-	-
14.	42	4.275	1.225	0.012	0.392	-	-
15.	1	4.267	1.189	0.008	0.4	-	-
16.	4	4.267	1.189	0	0.4	-	-
17.	47	4.24	1.084	0.027	0.427	-	-
18.	35	4.23	1.321	0.01	0.437	-	-
19.	62	4.23	1.321	0	0.437	-	-
20.	27	4.221	1.203	0.009	0.446	-	-
21.	14	4.167	0.917	0.054	0.5	0.48	II
22.	39	4.149	0.956	0.018	0.518	-	-

23.	10	4.148	1.284	0.001	0.519	-	-
24.	54	4.142	0.998	0.006	0.525	-	-
25.	55	4.138	1.136	0.004	0.529	-	-
26.	57	4.1	1.067	0.038	0.567	-	-
27.	46	4.05	0.834	0.05	0.617	-	-
28.	21	4.04	1.034	0.01	0.627	-	-
29.	41	4.035	1.285	0.005	0.632	-	-
30.	8	3.989	2.156	0.046	0.678	-	-
31.	13	3.989	1.156	0	0.678	-	-
32.	31	3.989	1.156	0	0.678	-	-
33.	40	3.989	1.156	0	0.678	-	-
34.	50	3.976	0.794	0.013	0.691	-	-
35.	26	3.965	1.324	0.011	0.702	-	-
36.	5	3.959	1.567	0.006	0.708	-	-
37.	33	3.926	1.251	0.033	0.741	0.72	III
38.	36	3.924	1.717	0.002	0.743	-	-
39.	22	3.895	1.592	0.029	0.772	-	-
40.	24	3.895	1.592	0	0.772	-	-
41.	45	3.895	1.377	0	0.772	-	-
42.	49	3.895	1.244	0	0.772	-	-
43.	23	3.862	1.365	0.033	0.805	-	-
44.	12	3.821	1.263	0.041	0.846	-	-
45.	44	3.82	1.72	0.001	0.847	-	-
46.	63	3.802	2.384	0.018	0.865	-	-
47.	53	3.777	1.331	0.025	0.89	-	-
48.	60	3.77	1.828	0.007	0.897	-	-
49.	30	3.759	1.834	0.011	0.908	-	-
50.	32	3.733	1.466	0.026	0.934	-	-
51.	59	3.733	2.108	0	0.934	-	-
52.	48	3.714	0.994	0.019	0.953	-	-
53.	56	3.713	1.627	0.001	0.954	-	-
54.	16	3.68	1.621	0.033	0.987	0.96	IV
55.	25	3.675	1.7	0.005	0.992	-	-
56.	6	3.575	1.885	0.1	1.092	1.2	V
57.	28	3.197	1.85	0.378	1.47	1.44	VI
58.	65	3.15	2.3	0.047	1.517	-	-
59.	58	3.106	1.817	0.044	1.561	-	-
60.	15	2.87	1.948	0.236	1.797	1.68	VII
61.	2	2.722	2.012	0.148	1.945	1.92	VIII
62.	64	2.648	2.199	0.074	2.019	-	-
63.	9	2.63	2.032	0.018	2.037	-	-
64.	3	2.621	1.515	0.009	2.046	-	-
65.	7	2.5	5.686	0.121	2.167	2.16	IX

To select the attitude items from the nine compartments the scale values and the corresponding 'Q' values were considered. Based on the criteria already mentioned items having high scale values and low 'Q' values were selected with one item from each compartment. Care was taken to ensure that the selected items represented the universe of content and covered the psychological and economical domains of commercial horticulture. Thereby nine items were selected with equal appearing interval and with a uniform distribution along the psychological continuum. The attitude scale thus constructed is given in Table 2.

Reliability and validity of the scale: The reliability of the scale was determined by split-half method. The nine selected attitude items were divided into two equal halves by odd-even method (Singh 2008). The two halves were administered separately to 30 tribal women in a non-sample area. The scores were subjected to product moment correlation test in order to find out the reliability of the half-test. The half-test reliability coefficient 'r' was 0.625 which was significant at one per cent level of probability. Further the reliability coefficient of the whole test was computed using the Spearman-Brown Prophecy formula. The whole test reliability r_{tt} was 0.748. According to Singh (2008) when the purpose of the test is to compare the mean scores of two groups of narrow range a reliability coefficient of 0.50 or 0.60 would suffice. Hence the constructed scale is reliable as the r_{tt} was >0.60.

Content validation was carried out by subjecting the selected nine items to judges' opinion. The responses were obtained on a four-point continuum of most adequately covers, more adequately covers, less adequately covers and least adequately covers. Scores of 4, 3, 2 and 1 were given for the points on the continuum respectively. Totally 30 judges responded by sending their judgments. The mean score 2.5 was fixed as the basis for deciding the content validity of the scale. If the overall mean score of the attitude items as rated by the judges was above 2.5 the scale will be declared as valid and if not otherwise. In the present case the overall mean score was worked out as 3.14 and therefore the constructed attitude scale is said to be valid.

Administration of the scale : The nine attitude items selected were arranged randomly in order to avoid biased responses. The scale was administered on a five point continuum as strongly agree, agree, undecided, strongly disagree and disagree. The scores for favourable statements were given as strongly agree- 7, agree- 5, undecided- 4, disagree- 3 and strongly disagree- 1. For unfavourable statements the scoring procedure was reversed. The score obtained for each statement was summed up to arrive at the attitude score for the respondents. The score ranged from 63 (maximum) to nine (minimum). The responses were grouped as less favourable, moderately favourable and highly favourable based on the cumulative frequency method.

Table 2: Final set of attitude items selected with corresponding scale and Q values

S/N	Statement number	Scale value	'Q' value	Statement	Nature of the statement
1.	61	4.557	1.123	Commercial horticulture generates additional income	Favourable
2.	38	4.287	1.12	Commercial horticulture is the most profitable and rapidly expanding sector	Favourable
3.	46	4.05	0.834	Hi-tech horticulture shall have a growing commercial importance in the near future	Favourable
4.	48	3.714	0.994	Growth potential in the production of horticultural commodities is strong in case of commercial horticulture	Favourable
5.	25	3.675	1.7	Maintenance cost is high in commercial horticulture	Unfavourable
6.	28	3.197	1.85	Tribal women find it difficult to compete in the formal commodity markets	Unfavourable
7.	58	3.106	1.817	Lack of transparency in marketing system	Unfavourable
8.	2	2.722	2.012	Commercial horticulture is beneficial only to the rich people	Unfavourable
9.	3	2.621	1.515	It has a little benefit and more propaganda	Unfavourable

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