

A scale to measure attitude of farmers towards organic farming practices in Tamil Nadu

M PRIYADHARSHINI and J VENKATA PIRABU*

**Department of Agricultural Extension and Rural Sociology
Tamil Nadu Agricultural University, Coimbatore 641003 Tamil Nadu, India
*Agricultural Research Station, Bhavanisagar, Erode 638451 Tamil Nadu, India
Email for correspondence: primasani05@gmail.com**

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 farmers towards organic farming practices in Tamil Nadu. Edward's equally appearing intervals scale was adopted to develop the scale. The final scale comprised ten statements. This scale was standardized for administration.

Keywords: Attitude scale; organic farming; farmers; equal appearing interval

INTRODUCTION

Organic farming is an innovative idea gaining importance worldwide and became a boon to the areas which are organic by default and far from the reach of green revolution technologies.

The study was conducted in Coimbatore and Erode districts in Tamil Nadu. The objective of the study necessitated the selection of a district where vegetables were predominantly cultivated under organic farming conditions. For this purpose Coimbatore and Erode districts were selected which

had maximum organic growers. A total of 66 statements resulted after deletion of 90 statements as per the criteria suggested by Edwards (1969) were sent to 50 extension specialists working in various Indian Council of Agriculture Research (ICAR) centres and state agricultural and veterinary universities throughout India for the critical evaluation of statements on a 5 point continuum. The study was conducted with 180 organic farmers with farming background for assessing their attitude towards organic farming practices. 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 attitude was operationalised as the mental disposition of the organic farmers about organic farming practices in varying degrees of favourableness or unfavourableness. Possible statements concerning the psychological object 'organic farming' with respect to the psychological and economical domains were collected based on the review of literature and discussion with scientists and extensionists. In total 90 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 66 items were selected which formed the universe of the content. The 66 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 50 judges who comprised extension specialists of state agricultural universities of Tamil Nadu, Kerala, Andhra Pradesh and Karnataka and Gandhigram Rural University. Of the 50 judges 30 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 Thurstone and Chave (1929).

$$S = l + \left[\frac{0.5 - \sum pb}{pw} \right] i$$

where S= The median or scale value of the statement, l= The lower limit of the interval in which the median falls, a pb= 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 and is assumed to be equal to 1.0

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

where Q= Inter-quartile range,

C_{75} = the 75th centile,

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

C_{25} = the 25th centile,

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

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

Scale to measure farmers attitude

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 organic farming's point of view it was decided to select ten statements to constitute the attitude scale. Since the selected scale values should have equal appearing interval and be distributed uniformly along the psychological continuum it was necessary to form ten compartments so as to select ten statements with one statement from each of the 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 (4.911) and the lowest scale value (2.928) was worked out. The difference value obtained (0.166) was divided by ten. This formed the width of the first class interval. The second interval was worked out by adding the value (0.166) with the width of the first class interval (0.39). Adding the value 0.166 with the width interval of second class (0.39) gave the third interval (0.59). Subsequently all the ten intervals were worked out. Each class interval represented a compartment for the selection of the attitude items. For example the value 0.317

Table 1. Computation of equal appearing intervals

S/N	Statements	'S' value	'Q' value	Difference between successive 'S' values	Cumulative value of the difference	Interval	Compartment
1.	18	4.911	2.3054	0.166	0.166		I
2.	57	4.745	1.1624	0.012	0.178		
3.	1	4.733	0.9833	0.017	0.195	0.198	
4.	4	4.716	1.0777	0.041	0.236		II
5.	43	4.675	1.1695	0.043	0.279		
6.	55	4.632	1.0537	0.072	0.351		
7.	42	4.56	1.3748	0	0.351		
8.	51	4.56	1.2933	0	0.351		
9.	52	4.56	1.1545	0	0.351		
10.	65	4.56	1.2933	0	0.351	0.396	
11.	66	4.56	1.1545	0.06	0.411		
12.	54	4.5	1.1569	0	0.411		
13.	56	4.5	1.699	0.075	0.486		
14.	46	4.425	1.2116	0.007	0.493		
15.	6	4.418	1.2683	0.081	0.574		
16.	35	4.337	1.1941	0.007	0.581		
17.	47	4.33	1.1263	0.012	0.593	0.594	III
18.	58	4.318	1.4143	0.008	0.601		
19.	44	4.31	1.3513	0.01	0.611		
20.	41	4.3	1.1054	0.01	0.621		

Priyadharshini and Pirabu

21.	40	4.29	1.2231	0.023	0.644		
22.	53	4.267	1.2193	0.028	0.672		
23.	38	4.239	1.8228	0.01	0.682		
24.	36	4.229	1.3531	0	0.682		
25.	5	4.229	1.2193	0.027	0.709		
26.	50	4.202	1.3513	0	0.709		
27.	64	4.202	1.3513	0.036	0.745		
28.	32	4.166	1.9054	0.018	0.763		
29.	7	4.148	1.4405	0.019	0.782		
30.	27	4.129	1.7532	0.008	0.79	0.7932	IV
31.	34	4.121	1.4509	0.015	0.805		
32.	13	4.106	1.8636	0.014	0.819		
33.	29	4.092	2.2783	0.026	0.845		
34.	26	4.066	2.1636	0.001	0.846		
35.	60	4.065	2.79	0.007	0.853		
36.	10	4.058	1.2991	0.018	0.871		
37.	33	4.04	1.5607	0.002	0.873		
38.	17	4.038	2.2576	0.005	0.878		
39.	14	4.033	1.8627	0.033	0.911		
40.	31	4	1.4793	0	0.911		
41.	37	4	1.4793	0.035	0.946		
42.	39	3.965	1.3369	0.006	0.952		
43.	29	3.959	1.6557	0.025	0.977		
44.	24	3.934	4.67	0	0.977		
45.	59	3.934	2.4636	0.009	0.986	0.9915	V
46.	11	3.925	1.4869	0.014	1		
47.	20	3.911	2.072	0.011	1.011		
48.	2	3.9	1.6142	0.007	1.018		
49.	22	3.893	1.8725	0	1.018		
50.	48	3.893	1.7851	0.015	1.033		
51.	49	3.878	1.4536	0.017	1.05		
52.	9	3.861	2.0788	0.011	1.061		
53.	12	3.85	2.0303	0	1.061		
54.	21	3.85	2.7482	0.046	1.107		
55.	8	3.804	2.4851	0.069	1.176		
56.	28	3.735	2.2766	0.002	1.178	1.189	VI
57.	61	3.733	2.674	0.011	1.189		
58.	63	3.722	2.7145	0.072	1.261		
59.	15	3.65	1.875	0.02	1.281	1.388	VII
60.	62	3.63	2.2666	0.13	1.411		
61.	25	3.5	2.1433	0	1.411		
62.	45	3.5	1.6016	0.037	1.448	1.586	VIII
63.	19	3.463	2.3413	0.145	1.593		
64.	30	3.318	1.8893	0.123	1.716	1.78	IX
65.	16	3.195	1.9333	0.267	1.983	1.983	X
66.	3	2.928	3.2222	2.928	4.911		

is close to 0.24 of the cumulative value of difference. So this formed the first compartment and similarly ten compartments were worked out.

To select the attitude items from the ten 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 organic farming. Thereby ten 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 ten selected attitude items were divided into two equal halves by odd-even method (Singh 2008). The two halves were administered separately to 30 organic farmers 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 ten items to judges' opinion. The responses were obtained on a four-point continuum of most adequately covered, more adequately covered, less adequately covered and least adequately covered and scores of 4, 3, 2 and 1 were given for the points on the continuum respectively. In total 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 would 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 was said to be valid.

Administration of the scale: The ten 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, disagree and strongly disagree. The scores for favourable statements were given as strongly agree-

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

S/N	Statement number	Statements	Scale value	'Q' value	Nature of the statement
1.	1	Organic farming maintains the soil fertility as compared to chemical fertilizers in the long-run	4.733	0.9833	Favourable
2.	55	Organic farming reduces input costs of production	4.632	1.0537	Favourable
3.	47	I believe that organic farming is more as a way of life than as a business	4.33	1.1263	Favourable
4.	41	Organic foods do need to get premium prices for encouragement of organic production	4.3	1.1054	Favourable
5.	10	The quality of organic farming products is better than the products from conventional farming	4.058	1.2991	Favourable
6.	48	Organic farming is a mixture of complex technologies	3.878	1.7851	Unfavourable
7.	61	Organic farming does not offer potential for food security	3.733	2.674	Unfavourable
8.	62	Lack of proper knowledge and training on organic farming practices is seen among the agricultural professionals	3.63	2.266	Unfavourable
9.	19	Organic practices like recycling of nutrients between plants, animals and soil is of no economical use to the farmer	3.463	2.341	Unfavourable
10.	16	The organic farming standards are too complicated to follow	3.195	1.9333	Unfavourable

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 9 (minimum). The responses were grouped as less favourable, moderately favourable and highly favourable based on the cumulative frequency method.

Received: 28.12.2015

REFERENCES

- Edwards L Allen 1969. Techniques of attitude scale construction. Vakils, Feffer and Simons Pvt Ltd, Bombay, India, pp 83-117.
- Singh AK 2008. Tests, measurements and research methods in behavioural sciences. Tata McGraw-Hill Publishing Co Ltd, New Delhi, India.
- Thurstone and Chave 1929. The measurement of attitudes. Chicago University Press, Chicago, 97p.

Accepted: 21.3.2016