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Construction of attitude scale to measure the attitude of the farmers towards soil health cards

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Abstract
The present investigate study was conducted in the year 2020-21. In this study attitude of rice famers towards Soil Health Card was studied. Due to lack of appropriate scale to measure attitude of rice famers towards Soil Health Card, it was assumed necessary to construct a scale for the purpose. Keeping this in view, an attempt has been made to develop a scale for measuring the attitude of rice famers towards Soil Health Card. Method of summated rating scale, by Likert (1932) was used. Thirty six statements were selected from fifty six statements for which "t" values were worked out. Statements both positive and negative with t-values more than 1.75 for were selected. Statement wise content analysis of attitude of rice famers towards Soil Health Card was conducted. "Soil Health Card Scheme is a blessing to the farmer" with highest mean score (4.65) ranked first followed by "One soil sample is collected from 5acres of land". In the same way remaining 34 statements were clearly analysed and presented in the paper.

Keywords: soil health card (SHC), rice farmers, attitude scale, reliability, validity

Introduction

Attitude has been defined as "the degree of positive or negative feeling, affect, opinion, action and belief associated with some psychological object". Psychological object may be any symbol, institution, person, phrase, slogan, idea or ideal towards which people may differ from each other with respect to positive or negative aspect. Attitude is the prime cause for the growth of an individual and will have great impact on the way we think, the way we perceive and the way we do the things. It is the determining factor for the success or failure of any vibrant endeavour. The balanced fertilizer application is the most predominant practice for the good management of farming, it became mandatory to strengthen the farmers in farming through modern and latest availed information by soil health card. The feeling component refers to the emotions which give attitude a motivating character or action tendencies. The action tendency component of an attitude includes all behavioural readiness associated with it. These three components of attitude, are, however, consistently related to each other. The psychological object for the present study has been conceptualized as the benefits of soil health card. Therefore, the present study was undertaken to construct and standardize a scale that would be helpful to measure the attitude of rice farmers towards SHC.

Materials and Methods

To measure the attitude of rice farmers towards SHCs a scale has been developed by the following procedure. Method of summated rating scale, by Likert (1932) [4] was used to construct the attitude scale of farmers towards SHCs. The scale was developed for the study to measure the favourableness or unfavourableness of farmers towards SHCs.

The steps used in construction of attitude scale are as follows
1. Collection of statements

Sixty statements expressing the attitude farmers towards SHC have been collected after thorough review of available literature, in consultation with the experts in the fields of agricultural extension, agronomy, soil science and the faculty involved in the implementation of Soil Health Card Scheme and they were edited on the basis of criteria suggested by Thurstone and Chave (1929) [5], Likert (1932) [4] and Edward (1957) [1].

Out of sixty statements, thirty six statements were retained after editing. These statements were administered to 100 judges taken as respondents having expertise in psychology and

SHC. The judges were asked to indicate their degree of relevancy with each statement on a three-point continuum ranging from highly relevant, relevant and irrelevant. The scoring pattern adopted was a score of 3 was given to highly relevant response, 2 to relevant response and 1 to irrelevant response, for a positive statement and for negative statement, the scoring pattern was reversed *viz.*, 'highly relevant' response with 1 weight, 'relevant' with 2 and 'irrelevant' with 3 weights in that order. Their responses were recorded and summated for the total statements.

The scores of the individual statements were summed up to get the total scores of the respondents. Based on the total scores obtained, the respondents were arranged in descending order. Then the top 25 per cent of the respondents with the highest scores and the bottom 25 per cent of the respondents with the lowest scores were considered as criterion groups to evaluate individual statements. The middle 50 per cent of the respondents were deleted for further analysis. The top 25 per cent was considered as high group and bottom 25 per cent was considered as low group to calculate the critical ratio i.e., 't' value for each statement. The calculated 't' value for each statement will measure the extent to which the statement differentiates between the respondents of high group and low group. The 't' values were calculated by using the formula suggested by Edwards (1957) [1]. The 't' value for each statement was calculated by using the formula.

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

$$\sum (X_H - \overline{X}_H)^2 = \sum X_H^2 - \frac{\sum (X_H)1^2}{n_H}$$

$$\sum (X_L - \overline{X}_L)^2 = \sum X_L^2 - \frac{\sum (X_L)1^2}{n_L}$$

$\overline{X}_H$ = The mean score on a given statement for the high group
$\overline{X}_L$ = The mean score on a given statement for the low group
$\sum X_H^2$ = Sum of squares of the individual score on a given statement for high group
$\sum X_L^2$ = Sum of squares of the individual score on a given statement for low group
$\sum X_H$ = Summation of scores on a given statement for high group
$\sum X_L$ = Summation of scores on a given statement for low group
$n = n_H = n_L$ = Number of judges in each group
$\sum$ = Summation

2. Selection of attitude statements for final scale

After computing the 't' value for all the statements, statements comprising of twenty nine positive and seven negative statements with t value equal to or greater than 1.75 were finally selected and included in the scale developed to measure the attitude of the farmers towards SHC. There were 36 statements in the final attitude scale developed (Table 1).

3. Reliability of the scale
A scale is reliable when it will consistently produce the same results when applied on the same sample (Good and Hatt, 1952) [2]. For testing the reliability, split half method was employed. The attitude scale of 36 statements was distributed to thirty farmers in non-sample area for their responses.
After getting back the responses, the scale was divided into two halves, all odd statements into one half and all even statements into another. Then the co-efficient of reliability was calculated between the two halves. The correlation coefficient for both the sets was worked out. The correlation coefficient (r = 0.78) was significant at 0.01 level indicating the attitude scale was highly suitable for administration to the rice farmers.

4. Validity of the scale
The validity of the scale means ability of any instrument to measure what it intended to measure. The developed scale was tested for content validity. According to Kerlinger (1987) [3], content validity of scale is the representative or sampling adequacy of the content, the substance, the matter and the topics of a measuring instrument. The content validity of the scale was determined through a group of experts. Since the items selected were from the universe of content, it was ensured that items covered the various aspects of attitude of the rice farmers towards SHC.

The content validity was applied to test whether the developed scale could discriminate between the individuals who have favourable attitude towards SHC and those who do not. The pilot testing exposed that the scale could differentiate the individuals having favourable attitude from that of unfavourable attitude towards SHC. As the scale value difference for almost all the statements included had a high discriminating value, it seemed reasonable to accept the scale as valid measure of the attitude. Thus, it ensured a fair degree of validity.

5. Administration of the scale
The scale thus meets the reliability and validity test satisfactorily indicated its ability as an instrument for measuring attitude of rice farmers towards SHCs.

Table 1: List of finally selected attitude statements towards SHCs with their respective 't' value

S. No.	Attitude of farmers	t-value
1	Soil Health Card Scheme is a blessing to the farmer	3.15
2	Unnecessary expenditure can be reduced because of SHC	4.55
3*	SHC is not useful for illiterate farmers	2.16
4	SHC is useful to adopt INM practices in the crops	6.13
5	SHC gives clear idea of which nutrient, the soil is in deficit	6.10
6	Soil degradation can be reduced because of SHC	3.76
7	SHC is useful to know the physical properties of the soil	4.47
8	Benefits of SHCs motivate other famers to take up SHC	2.20
9	Recommended dosage of fertilizers could be applied because of SHC	5.60
10*	SHC not gives information about time of application of fertilizers	2.17
11	SHC is helpful reduced use of complex fertilizers usage	4.68
12*	Instructions of SHC are not clear	2.62

13	SHC helps in increasing the productivity	2.14
14	One soil sample is collected from 5acres of land	2.11
15	Soil samples are collected in "Z" manner	2.22
16*	Physical parameters not reported in SHC are colour, pH, EC, OC	2.16
17	Results in SHC with colour codes are easily understandable	2.22
18*	SHC not indicates about macro nutrients N, P and K	3.47
19	Secondary nutrient being tested is Sulphur in SHC	2.15
20	Micro nutrients being tested under SHC are Zn, Fe, Cu, Mn and Bo	3.14
21	SHC provides recommendations for reclamation of acidic and alkaline soils	2.22
22	Deficit soils can be reclaimed by using suitable reclamation measures as per SHC	2.14
23	SHC is also being delivered though online to the farmers using Soil Health Card portal	2.11
24	SHC scheme providing SHC report to farmers at their doorstep	4.20
25	Precautions to be taken, while taking soil sample are known to me because of SHC	2.13
26	Alkalinity of the soils can be known with help of SHC information	2.26
27	The quantity of available Organic matter, N, P and K in soil is given in SHC report	3.68
28	Correct quantity of organic matter, N, P and K could be applied as per SHC	2.11
29	Correct quantity of available sulphur in soil by could be known by SHC	2.26
30	Correct quantity of biofertilizers as per the recommendation is given in SHC report	2.38
31	The quantity of available Zn, Fe, Mn and Bo in soil could be known by SHC report	2.22
32	Following SHC recommendations will give additional income to farmer	2.16
33	Soil Health Cards were issued after crop harvest	2.14
34	It is difficult to calculate dosage of fertilizers on the basis of nutrient status of soil	2.28
35*	In general, SHCs are not useful to farmers	2.13
36*	SHC is dose not helpful in adding the manures to problematic soil to improve quality	2.20

* Indicate negative statements, SHC-Soil health card

Conclusion
This study aims at developing a scale to measure the attitude of rice farmers towards SHCs. The affective aspect of attitude scale consists of 36 statements, with high reliability, and more predictive validity. This scale can be used in future studies on perceptions and feeling about the farmers towards SHCs. It will be helpful to the policy makers and administrators to develop suitable strategies towards SHCs by knowing the attitude of rice farmers towards SHCs. Assessment of attitude of rice farmers towards SHCs will illustrate the strength and weakness of the SHCs and also gives an idea to enhance better service in future to young farmers.

References
1. Edwards AL. Techniques of attitude scale construction. Vaklis, Feffer and Simon private ltd. Bombay 1969.
2. Good J, Hatt PK. Methods in social research. Mc Graw-Hill book Co., New York 1952.
3. Kerlinger FN. Foundations of behavioral research. Holt, Rinehart and Winston, New York 1973.
4. Likert RA. A technique for the measurement of attitude. Arc. Psycho 1932, 22(140).
5. Thurstone LL, Chave EJ. Measurement of attitude. University of Chicago press, Chicago 1929.
6. Patel JK, Patel JB, Patel BM, Chauhan NB. Development of Scale to Measure Attitude of Farmers towards Soil Health Card. Gujarat Journal of Extension Education 2012;23.