

A SCALE TO MEASURE ATTITUDE OF FARMERS' TOWARDS PLANT PROTECTION MANAGEMENT PRACTICES

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Abstract: Due to non-availability of a proper scale to measure the attitude of farmers' towards plant protection management practices in jute, it was felt necessary to construct a scale for the purpose. From the available methods to develop attitude scale, 'Likert's technique of summated rating (1932)' was used. Total 29 statements were selected for judgment. A team of 35 judges was approached to give the score for each statement on four point of continuum. Based on the values of critical ratio of items, eighteen statements were finally selected to constitute the scale to measure attitude of farmers' towards plant protection management practices.

Keywords: Attitude, measurement.

INTRODUCTION

Plant protection is a major and essential component of crop production. Thus, understanding of farmers' behaviour with respect to plant protection measures and pesticide use in jute (*Corchorusolitorius* and *Corchoruscapsularis*) is critical to enhance sustainability of chemical pest control in particular and protect their health and the environment, in general. In this regard, attitude plays a pivotal role in influencing one's overt or covert behaviour at three levels *i.e.* cognitive (favorable or unfavorable, desirable or undesirable, good or bad etc.), feeling (likes or dislikes, pleasing or displeasing etc.) and action tendency (behavioral readiness). These three components of attitude are consistently related to each other and are responsible for acceptance or rejection any particular innovation related to plant protection such as seed treatment, soil solarization etc. Its quantification is helpful in chalking out efficient extension strategies/training programmes for popularization of plant protection management among farming communities. In this backdrop, a standardized scale has been developed to measure the attitude of the farmers towards plant protection management practices in jute.

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MATERIALS AND METHODS

The method of summated rating suggested by Likert (1932) was used for the measurement of attitude of farmers towards plant protection management practices. The procedure followed for scale construction was as follows:

a. Collection of items: The items making up an attitude scale are called 'Statements'. A statement may be defined as anything that is said about a psychological object or stimulus. The first step in the construction of attitude scale was to collect statement about plant protection management practices. The statements, both favourable and unfavourable reflecting various dimension of attitudes were collected from review of literature and discussion with expert. A total of 48 statements were thus collected.

b. Editing and selection of items: All the statements were edited by applying the criteria suggested by Edwards (1957). Out of 48 statements collected initially, 29 attitude statements relevant to plant protection management practices were selected. Care was taken to include both positive and negative statements. The negative statements represented the conventional practices/views.

For the preparation of the finale scale, the selected 29 attitude statements were administered to a group of 35 experts comprising of Scientists, academicians and extension officers of Department of agriculture.

c. Item analysis: It was done to delineate the items that discriminate between persons having different attitudes. The scores were summed up to find out the total score of each statement for all items.

The response of respondents for each statements were obtained on a four point continuum viz., 'strongly agree', 'agree', 'disagree', and 'strongly disagree' with the weighted scores of 4, 3, 2, and 1 for positive statements and reverse scoring system was employed for negative statements. Here middle category of 'undecided' was dropped to pursue a respondent to respond to each item. As per Chattopadhyay (1963), the category of 'undecided' served as defence outlet for slightly unwilling respondent who wanted to escape the rigours of judging the items.

The statements were arranged in descending order based on total score for individual statements. The top 25 percent of the judges were with high score (high group) and bottom 25 percent of the judges with lowest score (low group) were used as criterion group to evaluate individual item. The critical ratio (t-value) for each item was worked out by the formula given by Edwards (1957).

$$t = \frac{X_H^- - X_L^-}{\sqrt{\frac{S_H^2 + S_L^2}{n_H n_L}}}$$

Where, X_H^- = the mean score on a given statement for the high group

X_L^- = the mean score on a given statement for the low group

S_H^2 = the variance of the distribution of responses of the high group to the statement

S_L^2 = the variance of the distribution of responses of the low group to the statement

n_H = the number of subjects in the high group

n_L = the number of subjects in the low group

The t value is a measure of the extent to which a given item differentiates between the high group from the low group. The edited statements with their respective t values have been given as table 1. Any value of “t” equal or greater than 1.75 was considered (Edwards, 1957) for inclusion of statements in final format of the attitude scale by this procedure, 18 statements were selected.

Table 1: A scale to measure farmers' attitude towards plant protection management practices

S. No.	Statements	t value
1.	I feel secured when I follow plant protection measures	8.55
2.	I enjoy sharing information of plant protection measure with others	3.42
3.	I do not have faith in the plant protection measures	2.90
4.	Plant protection measures promote the food and livelihood security	2.87
5.	Plant protection measures are not important for crop production	2.81
6.	I am willing to follow pest management practices, if training is assured	2.78
7.	I feel plant protection measures do not control all the pests	2.59
8.	I avoid pest management practices because it is a time consuming process	2.38
9.	Optimum production cannot be maintained without application of pesticides	2.29
10.	Plant protection measures do not contribute to increase in yield	2.28
11.	Spending money on plant protection measure is worthless	2.20
12.	I will not advice other farmers to adopt pest management practices as it is more tedious	2.16
13.	Pest management practices have potential to increase farmer's income	2.13

14.	Pest management practices create environmental pollution	2.10
15.	I am unaware about pest management practices	2.00
16.	I frequently use pest management practices in my field crops	2.08
17.	Plant protection is a farmer friendly approach	2.03
18.	I search a lot to get pest management practices	1.93

d. Reliability of scale: The scores were summed up to find out the total score of each statement for all items. A scale is reliable if it consistently produces the same results when applied to the same sample. In the present study split-half technique was used for testing the reliability of the constructed attitude scale. The test was administered to 30 farmers dividing the items into two equivalent parts with 9 odd numbered statements in one half and 9 even numbered statements in the other half. Each of the two sets of statements was treated as separate scale and then two sub-sets were correlated. The Pearson Product-Moment coefficient of reliability found to be 0.610 between two sets of scores confirmed the reliability of the scale. Using Spear- Brown formula, reliability coefficient value was 0.757.

e. Validity of scale: The validity of the scale refers to the efficiency with which it measured what it intended to measure. The validity of the scale was examined for content validity. The statements of the attitude scale were derived from review of literature, discussions with concerned experts, scientists covering the full spectrum of issues related to plant protection measures. The t values significant for all the 18 statements reflect high discriminating values. It means scale measured what it intended to measure.

f. Method of scoring: The developed scale has 18 items comprising 11 positive and 7 negative statements. The positive statements are 1,2,4,6,7,9,13,15,16,17 and 18 and negative statements are 3,5,8,10,11,12&14. Each item in the attitude scale has to be responded on four point of continuum *i.e.* 'strongly agree', 'agree', 'disagree', and 'strongly disagree'. For positive items the weight are 4,3,2 and 1 respectively. In case of negative items scoring is reversed. The total score of a respondent farmer for 18 items in the scale is his individual attitude score. Thus maximum obtainable score as per present attitude scale is 72, whereas minimum obtainable score is 18.

References

[1] Chattopadhyay S.N. 1963. A study of some psychological correlates of adoption innovations in farming. Ph.D. Thesis, Division of Agricultural Extension, Indian Agricultural Research Institute, New Delhi.

[2] Edwards, A.L. 1957. *Techniques of Attitude scale construction*. Appleton Century Crofts Inc. New York.

[3] Likert R.A. 1932. Technique for the measurement of attitude. *Archives of Psychology*, New York, p.140.