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A Scale to Measure Attitude of Organic and Inorganic Paddy Growers towards Organic Paddy Cultivation in TBP Command Area

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A B S T R A C T

Attitude is a settled way of thinking or feeling about something. It is an acquired state which is attained through experiences in a person's life. It is a state which makes someone liable for this actions and reactions. Attitude is a state of thought which is totally dependent on the condition of the event or situation. It can be evaluated by two measures, the one is extremely positive and the other is extremely negative. There are people who can take hold on both the types of attitude positive as well as negative which simply leads to the controversy if a person can hold multiple attitudes towards something. Organic farming is gaining popularity all over the world, as it can diversify agricultural production systems towards attaining improved productivity, farm income and food, as well as environmental safety. Hence, the present study analyzes the attitude of organic and inorganic paddy growers towards organic paddy cultivation in TBP Command Area by developing a scale to measure the same. The study was contemplated to develop and standardize the same. The method of equal appearing intervals was used to develop the attitude scale, which comprises of 32 statements (positive and negative). Split half method was followed for testing reliability of the scale and reliability co-efficient of the scale was 0.715. Hence, the scale is reliable and can produce consistent results. The scale was developed finally consists of 21 statements including 16 positive and 05 negative statements.

Introduction

Rice is the most prominent crop of India as it is the stable food for most of the people of the country. The paddy is the backbone of livelihood for millions of rural households and plays vital role in the country's food security, so the term "rice is life" is most appropriate in Indian context. In India organic farming was practiced since thousands of years. According to Naik *et al.*, (2012) organic farming is a holistic production management system which favours maximum use of organic materials (crop residues, animal excreta, on and off farm organic wastes, growth regulators and bio pesticides etc.,) and discourages use of

synthetically produced agro inputs, for maintaining soil productivity, fertility and pest management under conditions of sustainable natural resources and healthy environment. Organic farming is gaining momentum in the recent years with the initiatives undertaken by Government of Karnataka. Attitude is a psychological construct, a mental and emotional entity that inheres in, or characterizes a person. They are complex and an acquired state through experiences. Attitude is an expression of favour or disfavour toward a person, place, thing or event. This kind of scale is used to measure people's attitude towards a fairy clear and undimensional concept, using a number of statements that vary in how they express a positive or negative opinion about main concept (Jayanthi and Asokhan, 2016). The study was undertaken with the objective of development of attitude scale to measure the attitude of organic and inorganic paddy growers towards organic paddy cultivation in TBP Command Area.

Materials and Methods

In the present study, Likert method of summated rating (Likert's Technique, 1932) was followed to develop a standardized attitude scale. Likert's is a scale construction technique by which statements (items) that are clearly a favourable or unfavourable to the psychological object are standardized for the purpose of assessing attitudinal orientation of group of individuals about a particular object (Likert 1932). Each respondent is asked to respond to each item according to their perceived attitude intensity towards the items usually on five point continuum (Strongly agree, Agree, Undecided, Disagree and Strongly disagree). The advantage of this technique above other methods of scale construction and standardization is the ease of scoring and ease of summarizing the information obtained. The step-by-step procedure includes Item Collections, Relevancy Test, Selection of Items, Item Analysis, Reliability Test and Validity Test. In item collection process, a pool of statements was collected from the review of literature as well as consultation with agricultural scientists, extension experts, farmers and personal experience. A total of 102 sets of statements were collected from the pool of scientific sources as well as information covering most of the area related to organic paddy cultivation. The sets of 102 statements collected were subjected to screening using the 14 criteria suggested by Edward (1967) for attitude scale construction. Hence, the sets of 102 statements that satisfied the scaling criteria were finally selected from the pool of items collected. Relevancy test is the procedure by which the selected items were sent to the experts in the field for their expert judgment on the relevancy of the statement selected. The set of 87 statements that satisfied the item collection procedure were sent to 120 judges. The judges were asked to judge the relevancy of the test items, their difficulty level and content validity on five point continuums, *viz* Most Relevant (MR), Relevant (R) and Not Relevant (NR) against each statement. The judges were also asked to make necessary modification, addition or deletion of the statement based on their judgments.

Results and Discussion

Collection of items

A set of items covering the recommended cultivation practices of paddy were collected based upon review of previous research studies and discussion with experts in the field of Agril. Extension, Agronomy, Plant Pathology, Agril. Entomology, Agril. Microbiology, Sociology and Psychologists. The components includes seeds and nursery preparation, main field preparation and

transplanting, weed management, water management, fertilizer and nutrient management, plant protection, harvest and post harvest practices and other related statements. In these components, a list of 87 items consisting of 68 positive and 19 negative items were collected keeping in view of the applicability of statements suited to the area of study.

Editing of items

The items collected were examined and each item was carefully edited by following the criteria suggested by Edwards (1967). After rigorous culling, a total of 87 statements were retained out of 102 statements. Each statement comprised minimum possible words and these were checked for their easy comprehension.

Relevancy

The edited items were sent to 120 extension specialists working in various institutions like, Indian Council of Agriculture Research (ICAR), State Agriculture Universities, National Academy of Agriculture Research Management (NAARM), Central Research Institute for Dryland Agriculture (CRIDA), Indian Institute of Horticulture Research (IIHR) and National Institutions throughout India for the critical evaluation of statements to determine their relevancy on a three point continuum *viz.*, Most relevant, Relevant and Not relevant with the score of 2, 1 and 0, respectively and reverse for the negative statements. The judges were also requested to make necessary modifications and addition or deletion of items if they desired so.

The responses received from 72 out of 120 judges in time. The relevancy score for each statement was found out by adding the scores based on the rating of all the judges. To find out the relevancy percentage of each statements following formula was used.

Relevancy percentage (RP)

Relevancy percentage was worked out by summing up the scores of most relevant, relevant and not relevant categories, which was converted into percentage.

$$\text{Relevancy percentage} = \frac{(MR \times 3) + (R \times 2) + (NR \times 1)}{\text{Maximum possible score } (72 \times 3 = 216)} \times 100$$

Relevancy weightage (RW)

Relevancy weightage was worked out by the following standard formula

$$\text{Relevancy weightage} = \frac{(MR \times 3) + (R \times 2) + (NR \times 1)}{\text{Maximum possible score } (72 \times 3 = 216)}$$

Mean relevancy score (MRS)

Mean relevancy score was worked out by the following standard formula

$$\text{Mean relevancy score} = \frac{(MR \times 3) + (R \times 2) + (NR \times 1)}{\text{Number of Judges responded } (72)}$$

The items having relevancy percentage of more than 75 per cent (relevancy weightage of more than 0.75) and mean relevancy score of more than one were considered for final selection of items. Accordingly, 32 statements (out of which 26 positive and 6 negative) were retained. Further, in light of suggestions, criticisms and comments of the judges the items were modified and rewritten after the critical review and discussion with experts (Table 1).

Item analysis

Item analysis is an important step as per the Likert's technique of attitude measurement in the construction of valid and reliable scale.

The purpose of item analysis is to select such items which can very well discriminate between two criterions. The 32 items selected through judges opinion were administered to a random sample of 60 farmers on a five point continuum in a non-sample area. Scores assigned for the positive statements were, strongly agree – 5, agree – 4, undecided – 3, disagree – 2 and strongly disagree – 1. For negative statements the scoring pattern was reversed. The total score of a respondent was computed by summating his scores for all the individual items. The range of the scale, under the present scoring system was 32 – 160.

Final selection of item

Based upon the total scores, the respondents were arranged in ascending order. The top 25 per cent of the respondents with their total scores were considered as the high group and the bottom 25 per cent as the low group, so as these two groups provide criterion groups in terms of evaluating the individual items as suggested by Edwards (1967). Thus, out of 60 farmers to whom the items were administered for the item analysis, 15 farmers with lowest, 15 with highest scores were used as criterion groups to evaluate individual items.

The critical ratio, that is the 't' value which is a measure of the extent to which a given statement differentiates between the high and low groups of the respondents for each statements was calculated by using the formula suggested by Edwards (1967). After computing the 't' value for each items, the statements were arranged in rank order according to their 't' values. 21 (16 positive and 5 negative) statements with 't' value equal to or greater than 1.75 were finally selected and included in the attitude scale (Edwards, 1957) (Table 2).

Standardization of the scale

The validity and reliability was ascertained for standardization of the scale. Reliability was measured by split half method.

Reliability of the scale

Reliability is the ability of a 'test instrument' to yield consistent results from one set of measures to another. A good instrument should evoke responses that are valid and yield nearly same results if administered twice to the same respondents (Goode and Hatt, 1952). According to Kerlinger (1964) reliability is the accuracy or precision of a measuring instrument.

Split half method

In the present study, split-half method was used for testing reliability. The scale was split into two halves on the basis of odd and even number of statements and administered to 60 respondents. Karl Pearson product moment correlation coefficient was calculated between the two sets of scores obtained. The reliability of the test was 0.715. The 'r' value was significant at one per cent level of significance, indicating the attitude scale has high reliability and suitable for administration to the farmers as the scale was stable and dependable in its measurement. It may said that, the test is reliable to measure the attitude of farmers towards organic paddy cultivation practices.

Table.1

Sl. No.	Category	Range
1	Less favourable	Less than (mean - 0.425 SD)
2	Favourable	Between (mean ± 0.425 SD)
3	More favourable	More than (mean + 0.425 SD)

Table.2 Statements based on Judges MRS and RP score

Sl. No.	Statements	Relevancy Percentage	elevancy Weightage	Mean Relevancy Score
1	Summer ploughing leads to better exposure of soil to sun which minimizes the soil borne diseases	83.93	0.84	1.68
2	Puddling help in better incorporation of organic manures	75.00	0.75	1.50
3	Treating seeds with cow dung solution enhances germination percentage	75.00	0.75	1.50
4	Dipping of seedlings roots in solution prepared from *Azospirillum* + PSB +*Trichoderma* helps to meet the nutritional needs of the crop and reduce soil borne diseases	75.00	0.75	1.50
5	Timely sowing of paddy yields better with a less pest infestation	75.89	0.76	1.52
6	Maintaining proper spacing (20x10cm) ensures better yield	75.89	0.76	1.52
7	Seed /seedling treatment with biofertilizers and bio-control agents has no effect on pests and disease incidence (-)	75.89	0.76	1.52
8	Line sowing is better for weed management	75.89	0.76	1.52
9	Application of FYM help to improve soil properties	87.50	0.88	1.75
10	Incorporation of green manure crops will reduce dependence on chemical fertilizers	80.36	0.80	1.61
11	Application of Azolla help to increase the N content in paddy field	75.00	0.75	1.50
12	Application of biofertilizers help to improve the soil fertility	78.57	079	1.57
13	Use of chemical fertilizer had negative impact on soil health	75.89	0.76	1.52
14	Application of organic manures has no influence on quality and quantity of yield (-)	77.68	0.78	1.55
15	Spraying Panchagavya at flowering and grain filling stage ensures higher yield	75.00	0.75	1.50

16	Installation of pheromone trap help to monitor Lepidopteron insects	75.00	0.75	1.50
17	Release of *Trichogramma chilonis* is useful in keeping paddy stem borer below the ETL	75.00	0.75	1.50
18	Use of predators and parasitoides help to minimize insect pest incidence	76.79	0.77	1.54
19	Battery operated sprayer is not effective in pest and diseases management (-)	75.89	0.76	1.52
20	Optimum time of harvesting ensures highest recovery per cent of grains	75.89	0.76	1.52
21	The yield is low in organic farming during initial years	80.36	0.80	1.61
22	There is a less demand for organic paddy in the market (-)	75.00	0.75	1.50
23	Organic paddy fetches high market rate	75.89	0.76	1.52
24	Nutritional value of organic paddy is higher	75.00	0.75	1.50
25	Organic paddy farming reduces input costs of production in later years	76.79	0.77	1.54
26	Organic paddy cultivation reduces farmers exposure to health hazards	85.71	0.86	1.71
27	Organic paddy cultivation leads to efficient utilization of natural resources	85.71	0.86	1.71
28	Chemical herbicides are more suitable to control weed (-)	79.45	0.79	1.60
29	Use of chemicals had negative impact on human and animals health	84.82	0.85	1.70
30	Organic paddy farming help in improving water quality	75.00	0.75	1.50
31	Adoption of organic farming practices is practically not feasible (-)	75.89	0.76	1.52
32	Farmers prefer inorganic paddy cultivation for getting higher yield than organic paddy cultivation	79.46	0.79	1.59

Note- MRS=Mean Relevancy Score, RW= Relevancy Weightage, RP=Relevancy Percentage

Table.3 Scale to measure the attitude of organic and inorganic paddy growers towards organic paddy cultivation practices

Sl. No.	Statements	't' value
1	Spraying Panchagavya at flowering and grain filling stage ensures higher yield	6.78
2	Application of FYM help to improve soil properties	6.62
3	Incorporation of green manure crops will reduce dependence on chemical fertilizers	6.10
4	Dipping of seedlings roots in solution prepared from *Azospirillum* + PSB +*Trichoderma* helps to meet the nutritional needs of the crop and also reduce soil borne diseases	5.81
5	Treating seeds with cow dung solution enhances germination percentage	5.64
6	Maintaining proper spacing (20x10cm) ensures better yield	5.36
7	Seed /seedling treatment with biofertilizers and bio-control agents has no effect on pests and disease incidence	5.23
8	Use of chemical fertilizer had negative impact on soil health	4.73
9	Application of organic manures has no influence on quality and quantity of yield (-)	4.55
10	Timely sowing of paddy yields better with a less pest infestation	4.14
11	Organic paddy cultivation reduces farmers exposure to health hazards	3.95
12	Use of chemicals had negative impact on human and animals health	3.78
13	Organic paddy farming reduces input costs of production in later years	3.73
14	Adoption of organic farming practices is practically not feasible (-)	3.66
15	Organic paddy fetches high market rate	3.42
16	The yield is low in organic farming during initial years	3.13
17	Chemical herbicides are more suitable to control weed (-)	3.00
18	Farmers prefer inorganic paddy cultivation for getting higher yield than organic paddy cultivation (-)	2.77
19	There is a less demand for organic paddy in the market (-)	2.71
20	Ploughing leads to better exposure of soil to sun which minimizes the soil borne diseases	2.69
21	Optimum time of harvesting ensures highest recovery per cent of grains	2.61

Validity

Validity of a scale is the property that ensures the obtained test score as valid, if it measured what it supposed to measure. A scale is said to be valid if it stands for one's reasoning. The attribute of technology scale does possess face validity, content validity and intrinsic validity as they have been established. The details of each are given below.

Face validity

"A scale is face valid particularly if it looks valid to a layman" (Lindquist, 1966). Face validity is best restricted to the fact that a test 'looks' valid, particularly to those, who are unsophisticated in scale development. A more scientifically and professionally justifiable reason for face validity is to make it palatable to the examinee.

If he feels that a scale is relevant, he is likely to have increased motivation in taking it and uniformly high motivation in an important testing condition. When the scale was presented experts in the field of Agricultural Extension, Agricultural Microbiology, Pathology, Entomology and Psychology who were conversant with scale development and asked to express their opinion, they felt that the scale under construction looked valid. Hence, the scale had face validity.

Content validity

Content validity indicates how adequate is the content of the scale, sampling the domain of which inferences are to be made. To restore such validity to the scale, an attempt was made to see that all the components of attributes of technology were embraced by it. Under each attributes an adequate number of sample items were included which was proceeded by through and systematic gleanings on all the components of attributes of technology in books and journals. The instrument was subjected to the scrutiny, criticism and comment of the experts in Agricultural Extension, Agricultural Microbiology, Pathology, Entomology and Psychology. The scale was modified in the light of their comments and criticism. Thus, it may be said that the scale possessed content validity.

Administering scale

The final scale was administered to farmers and they were asked to respond on five point continuum *viz,* strongly agree, agree, undecided, disagree and strongly disagree against 21 selected statements of which 16 were positive and 5 negative.

The scoring orders for the response were 5, 4, 3, 2 and 1, respectively for positive statements and reverse in case of negative statements. Thus, the possible attitude score of the individual respondent about organic paddy cultivation practices could range from 21 to 105. Attitude scores of the respondents were calculated by adding up the score of all the statements.

Further, the farmers were categorized into less favourable, favourable and more favourable categories by considering mean and standard deviation.

References

Edward, A. L. 1967. Techniques of attitude scale construction. Vakils, Feffer and Simons Inc, NewYork.

Goode, W. J. and Hatt, P. K. 1952, Methods in social research. Mc Graw Hill, New York. agropedia.iitk.ac.in, 2010.

Kerlinger, F. N. 1964, Foundations of behavioural research. Holt Rinehart and Winston Inc., New York, p. 379.

Likert, R. A. 1932. A technique for the measurement of attitude. Arc. Psychology.

Lindquist, H. F. 1966. Educational measurement. American Council of Education, Washington, D, C., p.672.

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