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A Scale to Measure Level of Perceived Attributes of Tribal Women Regarding Vermiculture Technology

Latika Vyas*[1] and Maheshwari S[2]

*[1]Corresponding author, Ph. D. Schedule and Assistant Prof., Directorate Extension Education, Maharan Pratap University of Agriculture and Technology, Udaipur, Rajasthan, Email- latikavyas2000@yahoo.com
[2]Associate Professor, Department of Home Science Extension Education, Collage of Home Science, Maharan Pratap University of Agriculture and Technology, Udaipur, Rajasthan

Abstract

The study was conducted in purposively selected village "Reechawer" of Udaipur District of Rajasthan State. A sample of 40 Tribal women, one women from each household, continuously using vermiculture technology, was considered for gathering required information. The results of the study indicate that finally, 50 statements were selected in the scale, having t- value more than 1.75.

Keywords- Improved agricultural practices, adoption, Udaipur district, rating technique

Introduction

Adoption of improved agricultural practices in tribal area depends on the attributes perceived by the respondents. It was, therefore, thought necessary to develop a scale to measure the level of perceived attributes of tribal women regarding vermiculture technology. Attribute in the present context was conceptualized as the characteristics of vermiculture technology perceived by the tribal women such as cost, availability, relative advantage, profitability, complexity, compatibility, observability, triability and appropriateness etc.

Construction of Scale

For developing the attribute scale, summated rating technique was followed suggested by[1]. The attributes[2] are relative advantage, complexity, compatibility, observability and trialability. In addition to this, four other important attributes i.e. cost, availability, profitability & appropriateness of the vermiculture technology were also included in the study.

Item collection

A set of 70 statements were framed related to each attribute of vermiculture technology on the basis of relevant literature, discussion with faculty members of College of Home Science and interview with tribal women. The developed attribute scale was given to 53 subject matter specialists (soil scientists) and ten extension experts with appropriate instructions to critically evaluate each items for their relevance & appropriateness to measure attitude towards vermiculture technology and their response were obtained. Each item was rated on four point continuum as viz. high, medium, low and nil with the score of 3, 2, 1 & 0 respectively. They were also requested to delete redundant statement and suggest modifications in the statements deemed necessary. In all, 50 judges could responded in time, the relevancy response of the 50 judges were tabulated and analyzed appropriateness percentage, weightage and mean score for all the items. The statements having appropriateness percentage, weightage of more

than 0.75 and mean score of more than 3.5 were considered for final selection of statement.

Item Analysis

Finally, 62 positive and negative selected statements were administered to 40 tribal women actively involved in vermiculture technology from non sample area. Response through personal interview for each item was obtained on 4 point continuum, viz. "High", "Medium", "Low", and "Nil" with a score of 3, 2, 1 & 0 respectively. Score of the respondents were arranged in ascending order based on attribute scores 25% of the subjects with highest total scores and 25% with lowest total scores were selected for critical ratio calculation. The "t" value is a measure of the extent to which a given item differentiating the high group from low group, the formula for t the calculation is as follows:

$$t=\frac{\overline{X}H - \overline{X}L}{\sqrt{\frac{SH^2}{nH}+\frac{SL^2}{nL}}}$$

where as-

$\overline{X}H$ = 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

SH^2 = the variance of the distribution of response of the high group

SL^2 = the variance of the distribution of response of the low group

nH = the number of the respondents in the high group

nL = the number of the respondents in the low group

Based on items analysis ('t' values) 50 items finally were retained in the scale, having 't' value more than 1.75 significant at 5% level. Thus, 50 items were selected to constitute the scale to measure the attitude of tribal women towards vermiculture technology. Due care was exercised while selecting and working the statements so as to cover all the relevant aspects of vermiculture technology thus, ensuring a fair degree of content validity.

The 'r' value for attribute scale towards vermiculture technology by tribal women was 0.92, which was significant at 1% level of significance, indicating high reliability of the scale. The validity of the scale was ensured during the process of constructing the scale. The scale was examined for the content validity by determining how well the content of the scale represented the subject matter under study. All the possible items covering the universe of content were selected by discussions with experts, subject matter specialists and from all the possible literature on the subject. Thus, the content assured the content validity. The detail of number of statements in each attribute with their possible score is presented in **Table 1**.

Table 1. Distribution of statements and their scores

Components	Statements	Score
Cost	4	12
Availability	8	24
Relative Advantage	17	51
Profitability	3	09
Complexity	8	24
Compatibility	3	09
Observability	2	06
Trialability	2	06

Table 2. Final scale to measure perceived attributes of tribal women towards vermiculture technology. HE=High Extent, ME =Medium Extent, LE =Low Extent, NA - Not at all

S. No	Attributes	t- values	Extent			
			HE3	ME2	LE1	NA0
1	**COST**					
	a) Earthworms are costly.	3.85				
	b) Cost of raw material is high.	2.98				
	c) Preparation of shade requires high cost.	6.56				
	d) Bricks are costly	4.92				
2	**AVAILABILITY**					
	a) Earthworms are easily available	8.13				
	b) Water is easily available	7.49				
	c) Availability of raw material is easy	9.25				
	d) Material for shade can be collected easily.	3.87				
	e) Bricks are easily available	5.12				
	f) Plastic sheet is easily available in local market.	1.79				
	g) Credit facility for the technology is easily available	2.00				
	h) Labourer for this work is easily available.	5.10				

3	**RELATIVE ADVANTAGE**	
	Vermiculture technology is relatively advantageous as compared to traditional compost because-	
	(A) Soil	
	a) Soil fertility improves	7.63
	b) Soil texture and structure improves-granular form of soil and sponginess of soil increases.	4.44
	c) Soil water absorption or water holding capacity of soils increases.	7.32
	d) Reduce number of irrigation	6.89
	e) Reduces required amount of fertilizer (DAP and Urea) per bigha.	5.76
	f) Check termite problem in Soil.	8.23
	(B) Crop	
	a) Faster plant growth	8.90
	b) Greenness and vigour of plantsimproves	8.76
	c) Size of fruit increases	7.12
	d) Tenderness of fruit and vegetables improves.	
	e) Check insect/pest attack	4.67
	f) Check disease attack	7.65
	g) Yield increases	9.43
	(C) Environment	
	a) Maintain healthy surroundings	3.91
	b) Recycles the agrowaste	8.67
	D) Bed can be used as nursery bed	9.31
	E) Empower tribal women economically	6.32
4	**PROFITABILITY**	
	a) Easily sold in local market	2.65
	b) Provide extra income	6.66
	c) More economic benefit as compared to money investment.	7.54
5.	**COMPLEXITY**	
	a) Difficult to understand complete procedure of technology	6.43
	b) Preparation of Bed is difficult	7.91
	c) Problem in arranging raw materials layers or filling of bed	8.32
	d) Preparation of shade is very difficult task	6.77
	e) Empting the Bed is very tedious job.	6.54
	f) Sorting of earthworms is difficult	2.11
	g) Marketing is big problem	8.24
	h) Storage of vermicompost is very difficult.	7.00
6	**COMPATIBILITY**	
	a) Vermicompost is the need of present farming.	5.47
	b) Use of Vermicompost consistent with existing values.	8.56
	c) Vermicomposting is consistent with past experience of farmers/farm women.	6.89
7	**OBSERVATIBILITY (visible advantages of use of vermicompost)**	
	a) Material is fully decomposed.	9.12
	b) Non - sticky-odourless matter.	5.78
	c) Soil became fertile.	4.22
	d) Required less amount of fertilize	4.13
	e) Required less number of irrigation.	3.22
	f) Less attack of insect/pest.	6.21
	g) Less attack of termite in land.	7.43

	h) Increased crop production	8.54
8.	**TRIALABILITY**	
	a) Production possibility	3.11
	b) Marketing possibility	5.84
9.	**APPROPRATENESS**	
	a) Suitable to the region	7.76
	b) Suitable to the local situation/ farming	4.32
	c) Suitable to the individual	5.67

In all there were 50 statements with 150 scores.

Since, there was variation in the number of statements under each component and the responses were received in weighted score, the attributes were measured by mean weighted scores.

Conclusion

The scale was found to be reliable and valid. Therefore, it would correctly measure the perceived attributes of tribal women towards vermiculture technology to the maximum precision possible and can yield constant results when used on different occasions involving the similar and or different subjects.

References

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