RESEARCH NOTE

Scale To Measure the Attitude of Datepalm Growers towards Scientific Datepalm Cultivation Technology

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ABSTRACT

Realizing need of research tool, researchers have to develop a scale to measure attitude of Datepalm growers towards scientific Datepalm cultivation technology. Among the techniques available for construction of scale, the methodology suggested by Likert (1932) and Edward (1957) was used in this study for scale construction and for ascertaining the response of the scale. The technique chosen to construct the attitude scale was of "Scale Product Method" which combines the technique of "Equal Appearing Interval Scale" of Thurston (1946) for selection of the items and Likert's techniques of summated rating for ascertaining the response on the scale as proposed by Eysenck and Crown (1949). The scale contains total 23 statements. The co-efficient of reliability was calculated by Rulon's formula (Guilford, 1954), which came to 0.832. The responses can be collected on five points continuum viz., strongly agree, agree, undecided, disagree and strongly disagree with respective weights of 1, 2, 3, 4, and 5 for the unfavourable statements No. 2, 5, 6, 8, 14, 15, 16, 19, 20, 21, 22 and 23 and with the respective weights of 5, 4, 3, 2 and 1 for remaining favourable statements.

Key words: *Realizing need; Attitude; Datepalm cultivation technology;*

Horticultural sector covers 8% of total cropped area in the country, contributes 24.50% to the GDP and 54.55% to export earning in agricultural sector (*Chandha, 2001*). India is world's second largest producer of fruits with annual production of about 45, 496 million tonnes (*Annon, 2002*). Kutch district of Gujarat state enjoys monopoly of commercial cultivation of Datepalm in India. The Datepalm groves of Kutch might be about 200 years old and are believed to have been planted by Turk settlers (*Pareek and Sodagar, 1982*). The area under Datepalm cultivation was increased by considerable extent in last 20 years i.e. 4000 ha in 1991-92 to 16548 ha with production of 122654 MT in 2009-10. Datepalm is a high valued, salt tolerance crop requires less input and hence, farmers are now a day very much attracted to cultivate Datepalm as a remunerative crop. In spite of it, there is wide gap exist between potential and present yield per plant per year i.e. 50 kg fresh fruits per tree per year against 100-150 Kg. per tree per year reported in other countries. It means there are several factors related with individual which affect the rate of adoption of recommended Datepalm cultivation technology.

The attitude factor is one of them, that play significant role in motivating an individual to adopt any technology. To achieve desirable success in adoption of recommended Datepalm cultivation technology, attitude of farmers towards scientific Datepalm cultivation technology needs to be identified.

However, to conduct systematic study by adopting scientific tool or well developed scale to measure attitude of the farmers towards scientific Datepalm cultivation technology was not existed. Realizing this, researchers have to develop a scale to measure the attitude of farmers towards scientific Datepalm cultivation technology.

METHODOLOGY

In this study, attitude is conceptualised as positive or negative feeling of farmers towards scientific Datepalm Cultivation technology. To measure this, researchers have developed and standardise the attitude scale. Among the techniques available for construction of the scale, the methodology suggested by Likert (1932) and Edward (1957) was used in this study for scale construction and for ascertaining the response of the scale. The techniques chosen to construct the attitude scale was " Scale Product Method" which combines the Thurston's (1946) technique of "Equal Appearing Interval Scale" for selection of items and Likert's technique of "Summated Rating" for ascertaining the response on the scale as proposed by Eysenck and Crown (1949) was used.

Item collection : The items making up an attitude scale are known as statements. A statement may be defined as anything that is said about a psychological object. As a first step in developing the scale, 77 statements about scientific Datepalm cultivation technology were collected from relevant literature, discussion with experts/scientist of Datepalm research stations and extension personnel. The statements, thus selected were edited in light of the criteria suggested by Thurstone and Chave (1929) & Edward and Kilpatrick (1948). At last, 40 unambiguous and non-factual statements were finally selected.

Judge's rating of attitude statements : In order to judge the degree of importance of each statement more critically, a panel of judges were selected and their opinion was collected in terms of relevance of each statement on the five point equal appearing interval continuum from "strongly disagree" to "strongly agree". 250 slips of the selected statements were handed over to different judges. The judges selected for the study comprised the teachers/research scientists/extension personnel and Datepalm experts working in department of Extension Education of SAUs and National Universities, Extension Education Institute, State and National level Datepalm Research Stations/Institutes, Datepalm Tissue Culture laboratory and Datepalm experts of the District. The judges were visited personally or through telephone and internet along with the letter of instructions to guide them for rating the statements in desired manner for each set of the statements. Out of 250 judges, 160 judges returned the slip of selected statements with their judgement which was considered for further analysis.

Determination of scale by using paired t – TEST : The five points of rating scale were assigned to each statement by giving the score 1 for "strongly disagree", 2 for "disagree", 3 for "Undecided", 4 for "agree" and 5 for "strongly agree". Total Judge's score of 40 statements was calculated by summing up the score value of each statement. Finally, we got 160 judges' score values on set of 40 attitudinal statements which were arranged chronologically from highest to lowest score values. Then, we selected first 40 judges' score sheets (set of 40 selected statements) having chronologically highest score values. Same way, we selected last 40 judges' score sheets having chronologically lowest score values. We rejected middle 80 judges' score sheets having average total score values. This two set of 40 judges' score having highest and lowest score values on selected 40 statements make two equal sample "X" and "Y". Then, the *t*- value of each statement was calculated by using paired *t* – test method. The statements which have calculated *t* – values are higher than table *t* – values at 0.05 and 0.01 per cent level of significance were finally selected and vice-versa were rejected.

Final statements of attitude scale : When there was good agreement among the judges in judging the degree of agreement or disagreement of a statement, calculated *t* – values are more than table *t* – values at 0.05 and 0.01 per cent level of significance and when there was little agreement among the judges it was reversed. Based on calculated *t* – value and table *t* – values, 23 statements were finally selected to constitute attitude scale to measure the attitude of farmers towards scientific Datepalm cultivation technology.

The selected 23 statements for final format of the attitude scale were randomly arranged to avoid response bias. There were five columns against each of 23 statements representing a five point continuum of agreement or disagreement to the statements as adopted by Likert (1932). The five point continuum were strongly agree, agree, undecided, disagree and strongly disagree with weight of 5,4,3,2, and 1 respectively for

Table 1: Statements finally selected to constitute attitude scale to measure attitude of farmers towards scientific Datepalm cultivation technology.

Statement	SA	A	UD	DA	SDA
Datepalm cultivation is a means of livelihood for Kutch farmers. (**+ve**) (4.49**)					
There are no advisory agencies to provide guidance to farmers about Datepalm cultivation.(**-ve**) (4.15**)					
Farmers' suggestions are always incorporated in developing Dateplam cultivation technology. (**+ve**) (3.90**)					
Tissue culture plants of Datepalm need much care and management. (**+ve**) (6.82**)					
Datepalm cultivation is labour intensive. (**-ve**) (8.30**)					
Datepalm is much concern with water than its quality. (**-ve**) (5.68**)					
Tissue culture plants of Datepalm are easily available. (**+ve**) (7.00**)					
Seed propagation in Datepalm can only be useful for breeding purpose. (**-ve**) (5.92**)					
Datepalm is only income potential fruit crop of arid regions. (**+ve**) (3.97**)					
Datepalm cultivation technology honors the innovative farmers. (**+ve**) (6.07**)					
Plantation of Tissue culture Datepalm has opened export avenues of Dateplam. (**+ve**) (3.11**)					
Datepalm cultivation increases soil fertility. (**+ve**) (3.90**)					
Offshoot propagation is easy in Datepalm cultivation. (**+ve**) (4.92**)					
Research based recommendations are very few for Datepalm cultivation technology. (**_ve**) (3.39**)					
Datepalm cultivation is possible only in irrigated area. (**-ve**) (2.30*)					
Planting material of Datepalm of elite varieties are not easily available. (**-ve**) (7.61**)					
Datepalm plantation is only option to increase the income of the farmers of Kutch region. (**+ve**) (4.50**)					
Datepalm production has increased due to adoption of exotic varieties. (**+ve**) (5.86**)					
Datepalm cultivation is difficult to practice. (**-ve**) (4.64**)					
Seed propagation is time consuming and money wasting.(**-ve**) (3.26**)					
Pollination is difficult in Datepalm cultivation. (**-ve**) (9.80**)					
Only big farmers can adopt datepalm cultivation. (**-ve**) (4.15**)					
Datepalm cultivation needs expertise to practice. (**-ve**) (6.20**)					

** Significant at 0.01 * Significant only at 0.05 per cent level

SA = Strongly Agree, A = Agree, UD = Undecided, DA = Disagree, SDA = Strongly Disagree

Note: Out of 23 selected statements, the statement No. 1, 3, 4, 7, 9, 10, 11, 12, 13, 17, and 18 are positive and statement No. 2, 5, 6, 8, 14, 15, 16, 19, 20, 21, 22 and 23 are negative

favourable or positive statements and with weight of 1,2,3,4, and 5, respectively for unfavourable or negative statements. The final format of the scale is presented in Table 1.

Reliability of the scale : The reliability of the test was examined by employing test-retest method. In this method, the developed attitude scale with 23 items was administered twice to the 20 Datepalm growers at 15 days interval, who were neither previously interviewed nor had a chance to come in the final sample of the study. Thus, two sets of attitude score were obtained for each of 20 respondents. The co-efficient of reliability between the two sets of score was calculated by Rulon's formula (Guliford, 1954). Which came to be 0.832, indicating stability of the instrument.

Validity of the scale : The validity of the scale was examined for content validity determining how well content were selected by discussing it with specialists of extension and academicians. Thus, the present scale satisfied the content validity.

Scoring technique : The selected 23 statements for the final format of attitude scale are randomly arranged to avoid response biases, which might contribute to low reliability and direction from validity of the scale. Against

each of 23 statements there were five columns representing a five point continuum of agreement or disagreement to the statements as followed by Likert (1932). The points on continuum were strongly agree, agree, undecided, disagree and strongly disagree with weight of 5, 4, 3, 2, and 1 respectively for favourable (positive) statement and with weight of 1, 2, 3, 4, and 5 respectively for unfavourable (negative) statement. The weight of Likert's technique and scale value of Thurston's techniques were combined in form of a product and the total score for an individual was the sum of the product.

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