



KNOWLEDGE AND APTITUDE OF FARMERS IN RESPECT OF PESTICIDE USE

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Abstract- The present investigation was undertaken in Tapi district of South Gujarat to analyze knowledge and aptitude of pesticide users about use of Pesticides. Total 150 respondents were selected randomly for the study. The study revealed that 68.00 per cent of the respondents had medium level of knowledge about optimal use of pesticides. Education of respondents (0.555**), occupation (0.308**), annual income (0.365**), economic motivation (0.411**), scientific orientation (0.294**) and risk orientation (0.512**) were positively and highly significantly correlated with knowledge about optimal use of pesticides. Majority (86.00 per cent) of the respondents had medium to low level of aptitude in respect of use of pesticide where as education (0.466**), occupation (0.325**), annual income (0.263**), mass media exposure (0.309**), economic motivation (0.326**) and scientific orientation (0.489**) were positively and highly significantly correlated with aptitude in respect of use of pesticides.

Keywords- Aptitude, Knowledge, Pesticide, Pesticide users, Correlation, South Gujarat.

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Introduction

During 1960s and 1970s, "Green Revolution" had considerably increased the crop production and made India self-sufficient in food. It is mentioned that apart from high yielding varieties, chemical fertilizers, irrigation; pesticides played very important role in enabling the Green Revolution. Adequate plant protection measures are one of the important parameters of crop cultivation. In India, the consumption of pesticide is very low as compare to the world scenario. Notably, the crop yield per hectare is also among the lowest. The damage due to various crop pests and diseases are estimated to be around 30.00 per cent of the total agricultural production [1]. Under different type of climatic condition, fluctuation in temperature the insect-pest and diseases affect the crops plants which augment application of pesticides. It is essential that after using all the inputs such as hybrid seeds, irrigation, fertilizers, insecticides, pesticides, fungicides etc., we should protect our crops from ravage of pests. Keeping this in view, plant protection measures are considered most effective practices in agriculture. Poor plant protection is a major cause for low yield in crops. Several psychological factors are responsible for poor plant protection measure i.e. knowledge level of farmers about optimal use of pesticides, their way of thinking, attitude towards use of pesticides and their aptitude in respect of use of pesticides. Therefore keeping this in mind and demand of existing situation a study was conducted with a specific objectives "To study the level of knowledge of the respondents about optimal use of pesticides" and "To study aptitude of respondents in respect of use of pesticide".

Materials and Methods

The present study was conducted in Tapi district of South Gujarat region. Tapi district is consist of five taluaks viz., Valod, Vyara, Songadh, Uchchal and Nizar. All talukas were selected for the study. A simple random sampling technique was used for selection of villages from each selected talukas. Three villages were selected from each taluka, thus the total fifteen villages were selected for this study. Simple random sampling technique was followed for selection of

respondents from each selected village. There after 10 farmers from each village were selected randomly. Thus, total 150 farmers were selected as respondents. Keeping in view, the objectives of the study, the interview schedule was prepared and respondents were interviewed at their home and field.

Knowledge about optimal use of pesticides

Knowledge about optimal use of pesticide was measured with the help of teacher made knowledge test. The knowledge index was calculated with the help of following formula.

$$Ki = \frac{X_1 + X_2 + X_3 + \dots + X_n}{N} \times 100$$

Where,

Ki = Knowledge index

$X_1 + X_2 + X_3 + \dots + X_n$ = Total number of correct answers, i.e. total score.

N = Total number of items in the test

The respondents were grouped into three levels of knowledge by using mean and standard deviation.

Sr. No.	Knowledge	Range
1.	Low	Up to Mean - S.D.
2.	Medium	In between Mean \pm S.D.
3.	High	Above Mean + S.D.

Aptitude of pesticide users in respect of use of pesticide

Aptitude can be defined as a natural or inherent ability to do something. The schedule consists of nine parts and the score given according to the questions. The total score obtained by the individual should be recorded and based on that the overall score aptitude was calculated.

$$\text{Aptitude} = \frac{\text{Score obtain by individual}}{\text{Total score}} \times 100$$

The aptitude in respect of use of pesticide index was calculated for each respondent. Later on, all respondents were classified in to three levels according to extent of aptitude viz., low aptitude (below Mean – S.D.), medium aptitude (in between Mean \pm S.D.) and high aptitude (above Mean + S.D.).

Sr. No.	Aptitude	Range
1.	Low	Up to Mean – S.D.
2.	Medium	In between Mean \pm S.D.
3.	High	Above Mean + S.D.

The statistical tools e.g. mean, standard deviation and correlation of coefficient were used to analyze the data.

Results and Discussion

Knowledge about optimal use of pesticides

The data manifested in [Table-1] that slight more than two-third (68.00 per cent) of the respondents had medium level of knowledge about optimal use of pesticides, followed by high and low level of knowledge with 19.33 per cent and 12.67 per cent, respectively. On the basis of the above results, it can be concluded that a large majority (87.33 per cent) of the respondents were found with medium to high level of knowledge about optimal use of pesticides. The probable reason for above finding may be due to medium farming experience, frequent extension contact and medium level of mass media exposure. These findings are in conformity with the findings of [6, 7].

Table-1 Distribution of the respondents according to their level of knowledge about optimal use of pesticides n= 150

Sr. No.	Knowledge	Frequency	Per cent
1.	Low (below 45.62 score)	19	12.67
2.	Medium (in between 45.62 to 76.64 score)	102	68.00
3.	High (above 76.64 score)	29	19.33
Total		150	100.00

(Mean = 61.13, S.D. = 15.51)

Aptitude of pesticide users in respect of use of pesticide

Aptitude can be defined as a natural or inherent ability to do something. It is cleared from data in [Table-2] that nearly two-third (62.00 per cent) of the respondents had medium aptitude in respect use of pesticides, followed by low and high aptitude with 24.00 per cent and 14.00 per cent, respectively. On the basis of the above results, it can be concluded that a large majority (86.00 per cent) of the respondents were found with medium to low aptitude in respect of use of pesticides. Aptitude of the respondents is either inherent or acquired. The inherent means genetic side of aptitude is fixed, while acquired aptitude is depends on several characteristics of respondents i.e. education, experience, knowledge about use of pesticides and their attitude. These characteristics of the respondents were found to be medium. It might be the probable reason for medium to low aptitude of the respondents in respect of use of pesticides. These findings are supported by the findings of [4, 8].

Table-2 Distribution of the respondents according to their aptitude in respect of use of pesticides n = 150

Sr. No.	Category	Frequency	Per cent
1.	Low	36	24.00
2.	Medium	93	62.00
3.	High	21	14.00
Total		150	100.00

(Mean = 45.70, SD = 13.67)

Relationship between personal characteristics of the respondents with their knowledge and aptitude in respect of use of pesticides

Aptitude in respect of use of pesticides

The data manifested in [Table-3] revealed that the education of respondents (0.466**), occupation (0.325**), annual income (0.263**), mass media exposure

(0.309**), economic motivation (0.326**) and scientific orientation (0.489**) were positively and highly significantly correlated with aptitude in respect of use of pesticides. On the other hand social participation (0.107), land holding (0.162) and extension contact (0.142) and risk orientation (0.188) were found non significantly correlated whereas age (-0.269**) and farming experience (-0.360**) were found negative and highly-significantly correlated with aptitude in respect of use of pesticides. The above findings suggested that the null hypothesis (H_0) was partially accepted and partially rejected. This finding is partially supported by the findings of [2- 4]

Table-3 Relationship between personal characteristics of the respondents and their aptitude in respect of use of pesticides

Sr. No.	Independent Variables	Correlation Coefficient ('r' value)
1.	Age	-0.269**
2.	Education	0.466**
3.	Farming experience	-0.360**
4.	Social Participation	0.107
5.	Land holding	0.162
6.	Occupation	0.325**
7.	Annual income	0.263**
8.	Mass Media Exposure	0.309*
9.	Extension contact	0.142
10.	Economic motivation	0.326**
11.	Scientific orientation	0.489**
12.	Risk orientation	0.188

Where, * = significant at 0.05 and ** = significant at 0.01 level of probability

Knowledge about optimal use of pesticides

Table-4 Relationship between personal characteristics of the respondents and their knowledge about optimal use of pesticides

Sr. No.	Independent Variables	Correlation Coefficient ('r' value)
1.	Age	-0.233**
2.	Education	0.555**
3.	Farming experience	-0.445**
4.	Social Participation	0.197*
5.	Land holding	0.031
6.	Occupation	0.308**
7.	Annual income	0.365**
8.	Mass Media Exposure	0.213*
9.	Extension contact	0.052
10.	Economic motivation	0.411**
11.	Scientific orientation	0.512**
12.	Risk orientation	0.294**

Where, * = Significant at 0.05 and ** = Significant at 0.01 level of probability

The data manifested in [Table-4] revealed that the education of respondents (0.555**), occupation (0.308**), annual income (0.365**), economic motivation (0.411**), scientific orientation (0.294**) and risk orientation (0.512**) were positively and highly significantly correlated with knowledge about optimal use of pesticides. However, social participation (0.197*) and mass media exposure were found positive and significantly correlated with knowledge about optimal use of pesticides. On the other hand land holding (0.031) and extension contact (0.052) were found non significantly correlated whereas age (-0.233**) and farming experience (-0.445**) were found negative and highly-significantly correlated with knowledge about optimal use of pesticides. rejected. This finding is partially supported by the findings of [5, 9].

Conclusion

The study concludes that, slight more than two-third of the pesticide users had medium level of knowledge about optimal use of pesticides. It might be due to medium farming experience, frequent extension contact and medium level of mass media exposure. Education of pesticide users, occupation, annual income, economic motivation, scientific orientation and risk orientation were positively and highly significantly correlated with knowledge about optimal use of pesticides. Majority of the respondents had medium to low aptitude in respect of use of

pesticide. Aptitude of the respondents is either inherent or acquired. The inherent means genetic side of aptitude is fixed, while acquired aptitude is depends on several characteristics of respondents i.e. education, experience, knowledge about use of pesticides and their attitude. These characteristics of the respondents were found to be medium. It might be the probable reason for medium to low aptitude of the respondents in respect of use of pesticides. Education of the respondents, their occupation, annual income, economic motivation and scientific orientation were positively and highly significantly correlated with aptitude in respect use of pesticides.

Conflict of Interest: None declared

References

- [1] Anonymous (2013) <http://www.indiastat.com>.
- [2] Baria P.A., Soni N.V. and Patel D.D. (2012) *Guj. j. of Extn. Edu.*, 23, 78-80.
- [3] Chauhan N.M. (2011) *Indian Res. J. Ext. Edu.*, 11(3), 19-24.
- [4] Ghardharia H.B., Popat M.N. and Bharad N.D. (2012) *Guj. j. of Extn. Edu.*, 22, 9-12.
- [5] Hanumanaikar R.H., Jadhav S.N. and Ashalatha K.V. (2009) *Agriculture Update*, 4 (1/2), 8-12.
- [6] Lavania P. and Kumar D. (2014) *Ind. J. Extn. Educ. & R.D.*, 22, 56-59.
- [7] Pandya C.D., Bhatt S.T. and Chauhan N.M. (2013) *Guj. J. Ext. Edu.*, 24, pp-102-104.
- [8] Patel P., Patel M.M., Badodia S.K. and Sharma P. (2014) *Indian Res. J. Ext. Edu.*, 14(2), 46-49.
- [9] Singh K.K. and Pandey M.L. (2013) *Agril. Extn. Riview.*, Jul-Aug, 22-23.