

## RELATIONSHIP BETWEEN THE PROFILE AND THE LEVEL OF KNOWLEDGE OF BANANA GROWERS ABOUT INTEGRATED PEST MANAGEMENT

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### ABSTRACT

*A study between relationship between the profile and the level of knowledge of banana growers of about integrated pest management was carried out in Anand and Petlad talukas of Anand district. Sample size of the present study was 100 banana growers following IPM in banana cultivation. Out of twelve independent variables, viz. education, experience, social participation, annual income, extension contact, economic motivation, scientific orientation and risk orientation had positive and highly significant correlation with their level of knowledge about IPM. Whereas, variables like occupation and mass media exposure had positive and significant relationship with the level of knowledge of banana growers about IPM. The variables like age and land holding shows positive and non-significant relationship with the level of knowledge of banana growers about IPM.*

**Keywords:** relationship, knowledge, profile, integrated pest management (IPM), banana growers

### INTRODUCTION

Banana becomes one among the most popular fruits due to its low price and high nutritive value. Insect pests of banana can cause significant damage to fruits. Integrated pest management is a system approach to pest control which combines biological, cultural and other novel approaches with the judicious use of pesticides. The prime intent of IPM is to maintain pest levels below economically damaging levels while minimizing detrimental prominent variable influencing the level of knowledge of banana growers about IPM.

In the context of present study, there were some prominent profile variables influencing the level of knowledge of banana growers about IPM. It is important for the planners, extension workers and scientists to understand the factors affecting the level of knowledge of banana growers about IPM which may further results in soaring their level of knowledge about IPM. Keeping the above facts in view, an attempt has been made to study the relationship between the profile and the level of knowledge of banana growers of about integrated pest management.

### OBJECTIVE

To ascertain relationship between the profile and the level of knowledge of banana growers of about integrated pest management

### METHODOLOGY

The present study was undertaken in Anand district of Gujarat state. The level of knowledge of banana growers about IPM was studied with the help of the developed test. Five villages having fairly good number of banana growers adopting integrated pest management practices were selected from each taluka purposively. 10 banana growers adopting integrated pest management practices were randomly selected from each village. Thus, total sample size was 100 banana growers adopting integrated pest management practices.

To ascertain the relationship between profiles of banana growers and their level of knowledge about IPM in banana cultivation, the Karl Pearson co-efficient of correlation was worked out.

### Karl Person Coefficient of Correlation (r)

Karl person coefficient of correlation was calculated to find out the relationship between each of the independent variables and dependent variable. The correlation coefficient gives two kinds of information (I) indication of the magnitude of the relationship and (II) information about the direction of the relationship (whether positive or negative). It can be denoted by following formula:

$$r = \frac{\sum X - \frac{\sum X \sum Y}{n}}{\sqrt{\left[ \sum X^2 - \frac{(\sum X)^2}{n} \right] \left[ \sum Y^2 - \frac{(\sum Y)^2}{n} \right]}}$$

Where,

r = Correlation coefficient

Σ = Summation

X = Independent variable

Y = Dependent variable

n = Total number of respondents

## RESULTS AND DISCUSSION

To ascertain the relationship between profiles of banana growers and their level of knowledge about IPM in banana cultivation, total twelve personal, socio-economic, communicational and psychological characteristics of the banana growers were studied. The zero order correlations are presented in Table 1 which are discussed under following sub heads:

**Table 1: Relationship between the profiles of banana growers and their level of knowledge about IPM**

(n=100)

Sr. No.	Independent Variables	Correlation-Coefficient ('r' value)
X <sub>1</sub>	Age	0.119
X <sub>2</sub>	Education	0.283**
X <sub>3</sub>	Experience	0.275 **
X <sub>4</sub>	Social participation	0.259**
X <sub>5</sub>	Land holding	0.180
X <sub>6</sub>	Occupation	0.240*
X <sub>7</sub>	Annual income	0.285**
X <sub>8</sub>	Extension contact	0.328 **
X <sub>9</sub>	Mass media exposure	0.213*
X <sub>10</sub>	Economic motivation	0.305**
X <sub>11</sub>	Scientific orientation	0.401 **
X <sub>12</sub>	Risk orientation	0.266**

\* = Significant at 5% level of probability

\*\* = Significant at 1% level of probability

### 1 Age and knowledge

The data illustrated in Table 1 shows that there was

positive and non- significant correlation (r = 0.119) between age of banana growers and their level of knowledge about IPM. It reflects that age of banana growers did not influence on their level of knowledge about IPM significantly. This finding is supported by the findings of Joshi (2004), Manjunath (2010), Patel (2016), Khatri (2017) and Parmar *et al.*, (2020).

### 2 Education and knowledge

The data presented in Table 1 indicates that there was positive and highly significant correlation (r = 0.283\*\*) between education of banana growers and their level of knowledge about IPM. The above finding indicates that education played significant role in increasing the level of knowledge of banana growers about IPM.

The probable reason might be the higher education level of banana farmers might have enabled them to comprehend the complex integrated plant protection measures in an easy, simple and better way. It is an established fact that an educated person is in a better position to gather information, better understanding capacity and interpret even complex information related to his enterprises. Hence, educated people are having unique ability for easy gaining and retention of knowledge and also they become more receptive to the innovative things compared to the less educated or illiterates farmers. This finding conforms to the findings of Mulewa (2007), Manjunath *et al.* (2010), Patel *et al.* (2015) and Patel *et al.* (2017a).

### 3 Experience in banana cultivation and knowledge

The data given in Table 1 clearly shows that there was positive and highly significant correlation (r = 0.275\*\*) between experience of banana growers in banana cultivation and their level of knowledge about IPM. Thus, it can be inferred that experience had significant influence in shaping the knowledge of banana growers about IPM.

The probable reason might be that person with more experience gets more exposure to improve their knowledge regarding various integrated pest and disease management practices through a prolonged period of period of practical experience in banana cultivation and expertise in problem solving. During the tenure of long practical experience, person might have gone through various successes and failures in his farming life while application of various pest and disease management measures which might have made them to gain more knowledge and comprehension regarding the relevance and benefits obtained by adopting IPM in banana farming. This finding conforms to the findings of Patel, *et al.* (2015), Patel, (2016) and Gamit, (2018).

#### 4 Social participation and knowledge

The data presented in Table 1 illustrate that there was positive and highly significant correlation ( $r = 0.259^{**}$ ) between social participation of banana growers and their level of knowledge about IPM. Thus, it can be said that social participation of banana growers had significant influence in increasing their level of knowledge about IPM.

Higher education and active participation in social organizations might have provided the banana growers more opportunity and exposure to share their ideas, knowledge, information and their experience regarding various IPM practices those are prevailing in their respective region and also the benefits obtained by adopting them in their banana farming. This might be the reason for having higher knowledge about IPM for those having higher social participation. This finding is supported by the findings of Mulewa (2007), Manjunath (2010), Patel *et al.* (2015) and Patel *et al.* (2017b).

#### 5 Land holding and knowledge

It is apparent from the data depicted in the Table 1 that there was positive and non-significant correlation ( $r = 0.180$ ) between land holding of banana growers and their level of knowledge about IPM. Thus, it can be inferred that farm size of banana growers had no significant influence on their level of knowledge about IPM. This finding is supported by the findings of Joshi (2004) and Manjunath (2010).

#### 6 Occupation and knowledge

The data presented in Table 1 makes it clear that occupation of the banana growers had positive and significant correlation ( $r = 0.240^*$ ) with their level of knowledge about IPM. Hence, it may be concluded that occupation of respondents had played a relevant role in shaping knowledge of banana growers about IPM.

From the results, it can be inferred that involvement of banana growers in more than one occupation makes them economically sound to get and adopt new knowledge of IPM in banana cultivation. As majority of the farmers are involved in farming and farming + animal husbandry, obviously they might have good knowledge regarding IPM. Moreover, as most of the time they spend in farming activities which might have resulted in gaining more information and experience in using various IPM measures for effectively controlling various pest and diseases. This finding is in line with the findings of Patel (2016).

#### 7 Annual income and knowledge

The data presented in Table 1 reveals that correlation between annual income and their level of knowledge of banana

growers about IPM was positive and highly significant ( $r = 0.285^{**}$ ). From above results, it can be inferred that higher annual income played significant role in increasing level of knowledge of banana growers about IPM.

It is obvious that economic condition of the farmers gives them better opportunities for education and exposure. It helps to improve their level of knowledge about IPM through study of scientific literature, attending agricultural exhibitions and fairs, visiting KVKs and Anand Agricultural University. This finding is found similar to findings reported by Mulewa (2007), Manjunath (2010), Patel *et al.* (2015), Patel (2016) and Khatri (2017).

#### 8 Extension contact and knowledge

As it is apparent from the data presented in Table 1, extension contact of banana growers had positive and highly significant correlation ( $r = 0.328^{**}$ ) with their level of knowledge about IPM. Thus, it can be concluded that extension contact played a significant role in increasing the knowledge of banana growers about IPM.

The probable reason might be due to the frequent contacts and interaction of banana growers with scientists of AAU, progressive farmers, village level workers, persons in fertilizer depo, agrochemical companies, agro service centers, staffs of ATMA project and SMS of KVK which might have helped them to acquire more and more information, exchange ideas and thoughts regarding IPM. These things would have helped them to clear their doubts related to integrated pest management practices which might have further resulted in harnessing better understanding and knowledge about IPM. This finding has been supported by the findings of Mulewa, *et al.* (2007), Manjunath, (2010), Patel, (2015), Patel, (2017c) and Gamit, (2018).

#### 9 Mass media exposure and knowledge

It is clear from the data presented in Table 1 that, mass media exposure of banana growers had positive and significant correlation ( $r = 0.213^*$ ) with their level of knowledge about IPM. It reflects that mass media exposure had played significant role in increasing the knowledge of banana growers about IPM.

The probable reason might be that the higher level of mass media exposure would have helped them to keep themselves updated with the latest information on new integrated pest and disease management measures prevailing in their respective region. Banana farmers who keep themselves in touch with the various mass medias like mobile phone, TV, radio, agricultural magazines, agricultural exhibitions might have helped them to understand and analyse

the benefits of integrated pest management measures, leading to higher knowledge. This finding has been supported by the findings of Joshi (2004), Patel *et al.* (2008) and Paradva (2018).

### 10 Economic Motivation and Knowledge

The data presented in Table 1 clearly indicates that economic motivation of the banana growers had positive and highly significant ( $r = 0.305^{**}$ ) relationship with their level of knowledge about IPM. Thus, it can be concluded that economic motivation had significant influence on level of knowledge of banana growers about IPM.

The banana growers having better education, better contact with extension agencies, better social participation and higher level of mass media exposure were motivated to improve their economic activities and economically motivated farmers are oriented towards maximization of profit from farming. They might have regarded farming as an enterprise and it is obviously true in case of respondents for their knowledge gain about various IPM strategies in banana cultivation. This might be the reason for above finding. This finding has been supported by the findings of Manjunath (2010), Patel *et al.* (2015), Patel *et al.* (2017e) Khatri (2017) and Patel *et al.*, (2020).

### 11 Scientific Orientation and Knowledge

The data shown in Table 1 clearly shows that scientific orientation of banana growers had positive and highly significantly ( $r = 0.401^{**}$ ) correlation with their level of knowledge about IPM. Thus, it can be concluded that scientific orientation had significant influence on level of knowledge of banana growers about IPM.

This result might be due to the reason that higher level of education, more active social participation, high extension contacts (in terms of interaction with scientists of Anand Agricultural University and SMS of KVK) and high mass media exposure might have persuaded and motivated them to gain new information related to scientific technology for getting good production and higher income. As a result, their level of knowledge about IPM might have increased positively. This finding has been similar to findings reported Patel *et al.* (2015), Khatri (2017), Patel, (2017f) and Gamit, (2018).

### 12 Risk Orientation and Knowledge

The data given in the Table 1 illustrates that risk orientation of the banana growers had positive and highly significant correlation ( $r = 0.266^{**}$ ) with their knowledge about IPM. From this it can be inferred that risk orientation

of banana growers is a vital factor in increasing their level of knowledge about IPM.

The probable reason might be that the banana growers with higher risk orientation are more likely to undertake calculated risk in farming in terms of necessary expenditure in buying scientific literature, attending agricultural exhibitions and fairs, visiting KVKs and Anand Agricultural University for interaction with scientists which will be resulted in higher knowledge regarding IPM. This finding is similar to those reported by Kumar *et al.* (2013), Patel *et al.* (2015) and Patel *et al.* (2017g).

### CONCLUSION

Out of twelve independent variables, viz. education, experience, social participation, annual income, extension contact, economic motivation, scientific orientation and risk orientation had positive and highly significant correlation with their level of knowledge about IPM. Whereas, variables like occupation and mass media exposure had positive and significant relationship with the level of knowledge of banana growers about IPM. The variables like age and land holding shows positive and non-significant relationship with the level of knowledge of banana growers about IPM.

Hence from the above study, it can be concluded that education, experience, social participation, annual income, extension contact, economic motivation, scientific orientation and risk orientation were the prominent variable influencing the level of knowledge of banana growers about IPM.

### CONFLICT OF INTEREST

The authors of the paper declare no conflict of interest

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