

ADOPTION DYNAMICS OF PIGEON PEA GROWERS IN RELATION TO INTEGRATED PEST MANAGEMENT

A.C.Patel¹, J.B.Patel² and U.A.Patel³

ABSTRACT

The study was conducted in Vadodara district of Gujarat State with total 250 respondents. A perusal of the data indicated that More than half (52.00 percent) of the pigeon pea growers had medium level of adoption pertaining to cultural practices related to Integrated Pest Management technology while vast majority (74.40 percent) of them had medium level of adoption regarding mechanical practices of IPM in pigeon pea. In respect of biological practices, majority (59.20 percent) of the pigeon pea growers had medium level of adoption whereas slightly more than half (51.20 percent) of them had medium level of adoption about the use of pesticides. More than half of the Pigeon pea growers had medium level of adoption.

INTRODUCTION

Pigeon pea is widely grown in Indian sub-continent, which accounts for 90 per cent of the world's crop. Besides adverse climate condition, the recurrent attack by a large number of insects, pests and diseases is one of the most important causes of low yield. In India, the annual loss by insects, pests and diseases is estimated to the tune of 20% per cent amounting to Rs 1200 crores. The damage due to insect- pests alone in the absence of proper plant protection measures in pulses was assumed to be 40.18 percent. Thus, it is obvious that the yield of pigeon pea can be increased significantly by adopting Integrated Pest Management technology. IPM is an approach that envisages combination of techniques that may contribute to suppression of pests by cultural methods, conservation and augmentation of natural enemies and specific chemical pesticides as needed so as to keep pest population below the level that can cause economic injury.

METHODOLOGY

The study was conducted in Vadodara district of Gujarat state. Vadodara district was selected

purposely on the basis of leading pigeon pea growing area. Pigeon pea is grown in almost all the twelve talukas of the district. Karjan and Dabhoi which have the maximum production and area under pigeon pea cultivation were selected for the study. Thirteen villages from Dabhoi taluka and twelve villages from Karjan taluka were selected randomly. Thus, total twenty five villages were selected for the study. Ten pigeon pea growers were randomly selected from each village making total sample of 250 respondents.

The data were collected through interview schedule. The data were then statistically analyzed using frequencies, percentage and rank.

FINDINGS AND DISCUSSION

1 Practice wise adoption of recommended Integrated Pest Management technology by pigeon pea growers

To assess adoption level regarding Integrated Pest Management technology in pigeon pea, items related to cultural, mechanical, biological and chemical control practices were included. Data pertaining to practice wise adoption of Integrated

1. Assoc. Extn. Educationist, Anand Agril.University,Anand (Gujarat).

2. Asstt.Extn. Educationist,Anand Agril.University,Anand (Gujarat).

3. Asstt. Professor, Home Science College, Anand Agril.University,Anand

Pest Management technology by the pigeon pea growers are presented in Table 1

1 Cultural Practices

In this component, cultural practices like selection of wilt resistant variety, precaution taken to avoid infestation of pest and disease involving seed treatment, crop rotation and deep ploughing were included. Table-1 portrays that more than half (52.00 per cent) of the pigeon pea growers had medium level of adoption pertaining to cultural

practices related to Integrated Pest Management technology where as 28.40 per cent and 19.60 per cent of pigeon pea grower had low and high level of adoption, respectively.

It was observed that majority of the farmers had adopted wilt resistant variety and crop rotation where as seed treatment with pesticides as precautionary measure and deep ploughing were not adopted by majority of the pigeon pea growers.

Table 1 : Distribution of the pigeon pea growers according to their practice wise adoption of Integrated Pest Management in pigeon pea n= 250

Sr. No.	Practices	Low	Medium	High	Total Score	Mean Score	Rank
1	Cultural	071 (28.40)	130 (52.00)	049 (19.60)	478	1.912	II
		S.D. = 23.04 Mean = 43.94					
2	Mechanical	055 (22.00)	186 (74.40)	009 (03.60)	454	1.816	III
		S.D. = 21.66 Mean = 54.20					
3	Biological	082 (32.80)	148 (59.20)	020 (08.00)	338	1.352	IV
		S.D. = 13.88 Mean = 49.15					
4	Chemical	033 (13.20)	128 (51.20)	089 (35.60)	556	2.224	I
		S.D. = 17.97 Mean = 66.95					

N.B. Figures shown in parentheses indicate percentage

2 Mechanical Practices

Mechanical means of pest control is an eco-friendly approach and has vital importance for sustainable agriculture. Mechanical method of pest control involves collection of egg / larvae and infected plant debris and use of pheromone traps. Data presented in Table-1 indicate that majority of pigeon pea growers had medium (74.40 per cent) level of adoption regarding mechanical practices of Integrated Pest Management in pigeon pea followed by low (22.00 per cent) and high (03.60 per cent) level of adoption.

During field survey, it was also observed that majority of the pigeon pea growers used to collect and destroy insect pest disease infected plants

from the field but use of pheromone traps was not much prevalent.

3 Biological Practices

Pest control by natural means with predators and parasites is an important component of Integrated Pest Management in recent years as it is eco-friendly and non-polluting. It is just a developing science and lot of long term research is to be geared up in the interest of farmers for quality product and sustainable agriculture. Data in this regard show that majority (59.20 per cent) of the pigeon pea growers had medium level of adoption regarding the biological practices; however, 32.80 percent and 08.00 per cent had low and high level of adoption, respectively.

Through discussion with the farmers, it was noticed that farmers neither used predators like *Crysopa* nor applied HNPV for controlling heliothis which is the major pest of pigeon pea.

4 Chemical Practices

Pest control by chemical means involve practices like use of pesticides. Table-1 reveals that slightly more than half (51.20 per cent) of the pigeon pea grower had medium level of adoption, where as 35.60 and 13.20 per cent had high and low level of adoption about the use of pesticides in pigeon pea, respectively.

During data collection it was observed that majority of the pigeon pea growers had good adoption behaviour about recommended pesticides but there was a lacuna in adoption of pesticides as per the recommended dose.

According to adoption hierarchy, adoption regarding chemical control of insect/pest ranked first with mean score of 2.224 followed by cultural, mechanical and biological control with mean

score of 1.912, 1.816 and 1.352 respectively.

Relative advantage of quick knockdown effect of chemical pesticides over other components of Integrated Pest Management was possibly the main reason for higher adoption of chemical control as compared to other practices related to Integrated Pest Management.

2 Overall adoption level of Integrated Pest Management technology

Generally the farmers do not adopt package of practices fully. There is only a partial adoption by them. As a result, the gap always appears between the recommended production technology and its use at farmer's field. With a view to finding out the extent of adoption of pigeon pea growers pertaining to Integrated Pest Management technology, the pigeon pea growers were asked to give information about all components of Integrated Pest Management technology adopted by them. The data regarding overall adoption level of Integrated Pest Management technology are given in Table: 2

Table 2 : Distribution of pigeon pea growers according to their level of adoption

n=250

Sr. No.	Level of adoption	Frequency	Percentage
1	Low (below 39.61 score)	060	24.00
2	Medium (39.61 to 63.59 score)	140	56.00
3	High (Above 63.59 score)	050	20.00

Mean =51.60

S.D. = 11.99

A perusal of Table: 2 reveals that more than half (56.00 per cent) of the pigeon pea growers had medium level of adoption followed by low and high level of adoption with 24.00 and 20.00 per cent of the pigeon pea growers, respectively. It can be concluded that more than half of the pigeon pea growers had medium level of adoption regarding recommended Integrated Pest Management in pigeon pea. The probable reason might be their middle age and moderate education level having ability to read, understand and concretize the ideas which would have led to medium adoption level.

CONCLUSIONS

More than half of the pigeon pea growers had medium level of adoption pertaining to cultural

practices (52.00 per cent), biological practices (59.20 per cent) and chemical practices (51.20 per cent), whereas majority of them (74.40 per cent) had medium level of adoption regarding mechanical practices of Integrated Pest Management technology in pigeon pea. According to adoption hierarchy, adoption regarding chemical control of insect/pest ranked first with mean score of 2.224 followed by cultural, mechanical and biological control with mean score of 1.912, 1.816 and 1.352 respectively. So far as overall adoption is concerned, more than half (56.00 per cent) of the pigeon pea growers had medium level of adoption followed by low and high level of adoption with 24.00 and 20.00 per cent, respectively.