KNOWLEDGE AND ADOPTION BEHAVIOUR OF FARMERS ABOUT THE ATTRIBUTES OF BIO-CONTROL MEASURES

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Crop protection is an essential and vital aspect of crop production. At present due to heavy use of chemical pesticides, numbers of pests have developed resistance to chemical pesticides and natural enemies are destroyed and previously innocuous insects have become major pests. Therefore, the use of chemical pesticides need to be minimized so that it would be ecologically least destructive, economically viable and at the same time socially acceptable, conservation of natural enemies may also be given to weightage for healthy and pollution free environment. It is therefore felt necessary to investigate the factors related to use of bio-control measures, with this in view the present study was undertaken with the following objectives :

(i) To study the perception of respondents about attributes of bio-control practices.
(ii) To study the knowledge of respondents about bio-control measures.
(iii) To study the extent of adoption of bio-control measures practices by the respondents

METHODOLOGY :

The study relates to 137 respondents in Akola district of Vidarbha region in Maharashtra State who had undergone training in bio-control measures. Scale developed by Ghoderao and Ingle (1984) was used to measure innovation attributes with suitable modification. The scale contains ten statement viz. soil application of the Trichoderma powder before sowign, use of Trichoderma powder for seed treatment, releasing tricho-cards on the plants, releasing eggs of chrysopa, spraying of HaNPV solution, spraying of B.t. solution, use of power sprayer, profit due to use of bio-control measures, labour charges for spraying and precautions to be taken use of bio-control measures were advocated to the respondents of four points continnum viz. more profitable, profitable, not profitable and not at all profitable. The score allotted to the continnum were 4, 3, 2 and 1 respectively. The categorization was based on mean and standard deviation, as low, medium and high. According same procedure was use to measure the congruity, feasibility and complexity.

For ascertaining the knowledge and adoption level of the respondents, about bio-control measures a list of main practices and sub-main practices was prepared. Following five major bio-control practices were considered :

(i) HaNPV (Helicoverpa Nuclear Polyhydrosis Virus) spraying on cotton.
(ii) Use of trichocards.
(iii) Use of Chrysoperla Carneas eggs.
(iv) Use of trichoderma powder and
(v) Spraying of Bacillus thurengeneisis (B.t.)

All 30 bio-control practices were studied for ascertaining the knowledge and adoption. Knowledge was ascertained on three-point continuum i.e. full, partial and no with two, one and zero score respectively. The raw score was converted into the knowledge index by using the formula as follows :

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$$K.I. = \frac{\text{Obtained knowledge score}}{\text{Obtainable knowledge score}} \times 100$$

$$K.I. = \frac{\text{Obtained adoption score}}{\text{Obtainable adoption score}} \times 100$$

RESULTS AND DISCUSSION :

Innovative attributes :

Distribution of respondents according to their perception of technological attributes is presented in Table 1 a, b, c and d.

Table 1 (a): Distribution of respondents according to levels of perception about profitability.

S. No.	Levels of perception about profitability	Respondent	
		No.	Percent
1.	Low	26	18.98
2.	Medium	74	54.02
3.	High	37	27.00

X = 27.21 S.D. = 4.42

Table 1 (b) : Distribution of respondents according to levels of perception about Congruity.

S. No.	Levels of perception about profitability	Respondent	
		No.	Percent
1.	Low	25	18.25
2.	Medium	100	72.99
3.	High	12	8.76

X = 19.30 S.D. = 5.01

Table 1 (c) : Distribution of respondents according to levels of perception about Feasibility.

S. No.	Levels of perception about profitability	Respondent	
		No.	Percent
1.	Low	39	28.47
2.	Medium	80	58.39
3.	High	18	13.14

X = 22.20 S.D. = 4.43

Table 1 (d) : Distribution of respondents according to levels of perception about complexity.

S. No.	Levels of perception about complexity	Respondent	
		No.	Percent
1.	Low	11	8.03
2.	Medium	122	89.05
3.	High	4	2.92

X = 21.47 S.D. = 3.30

Table 1 (a) indicates that 54.02 per cent respondents perception about profitability of bio-control measures was moderate. Nearly one fourth of the respondents (27.0 per cent) were found to have high level, whereas, 18.98 per cent of the respondents had low level of perception about profitability of the bio-control measures.

Table 1 (b) indicates that 72.99 per cent respondents perceived bio-control measure moderately congruent. Relatively less number of the respondents (18.25%) were found to perceive bio-control measures less congruent to the traditional practices. Only 8.76 per cent were found to have high level of perception about the congruity of biocontrol measures with traditional practices. The findings are in concurrence with findings reported by Ghoderao and Ingle (1984).

Table 1 (c) indicates that more than half of the respondents (58.39%) perceived bio-control measures moderately feasible. One fourth of respondents (28.47%) were found to perceive a low feasibility, whereas (13.14%) of the respondents have perceived bio-control measures highly feasible in their respective situations.

From table 1 (d), it is observed that majority of the respondents (89.05%) perceived moderate complexity in bio-control measures. Only 8.03 per cent and 2.92 per cent of the respondents had perceived bio-control measures as less and high complexity respectively. These observations confirm the findings reported by Ghoderao and Ingle (1984).

Knowledge levels :

Table 2 : Distribution of respondents according to their knowledge levels.

S. No.	Knowledge levels	Respondents	
		No.	Percent
1.	Low	22	16.05
2.	Medium	104	75.91
3.	High	11	8.04

Adoption levels :

Table 3 : Distribution of respondents according to their adoption levels.

S. No.	Adoption levels	Respondents	
		No.	Percent
1.	Low	9	6.56
2.	Medium	117	85.40
3.	High	17	8.04

Correlates of knowledge and adoption behaviour :

Table 4 : Correlates of knowledge and adoption of the respondents about bio-control measures with innovation attributes.

S. No.	Innovation attributes	Coefficient of correlation (r)	
		Knowledge	Adoption
1.	Profitability	0.3119**	0.3975**
2.	Congruity	0.7115**	0.7197**
3.	Feasibility	0.7388**	0.7928**
4.	Complexity	-0.5483**	-0.5974**

** Significant at 0.01 level of probability

From Table 2, it is revealed that the 75.91 per cent respondents had moderate knowledge level about bio-control measures; whereas, comparatively less i.e 16.05 per cent and 8.04 per cent respondents had low and high level of knowledge about bio-control measures practices respectively. It is concluded that most of the respondents had moderate knowledge about bio-control measures practices. The findings are in concurrence with the findings reported by Sharma et al. (1988), Yawalkar and Nikhade (1991) and Anonymous (1996).

From Table 3, it is revealed that the 85.40 per cent respondents had overall moderate adoption level about bio-control measures practices. A negligible perentage of the respondents (6.56 per cent) and 8.04 per cent) had low and high adoption level about bio-control measures respectively. The present findings are in concurrence with the findings reported by Kulkarni *et al.* (1994), Anonymous (1996), Kubde *et al.* (1986) and Basavaprabhu and Gangadharappa (1997).

It was observed from (Table 4), that profitability (0.3119), congruity (0.7115) and feasibility (0.7388) were significantly correlated with knowledge level of the respondents. The relationship was significant at 0.01 level of probability. However, the complexity (-0.5483) was found to be related negatively and significant with knowledge level of the respondents. It was also observed that profitability (0.3975), congruity (0.7197) and feasibility (0.7928) were significantly correlated whereas, complexity (-0.5483) was found to be negatively correlated and having significant relationship with adoption level of respondents about bio-control measures.

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CREDIT ORIENTATION OF TRIBAL DAIRY FARMERS

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It has been rightly said that leaving aside a small microscropic rural population, the great majority is living under conditions of stark poverty, landless labourers and particularly tribals are the worst hit. There is currently, a genuine concern for the development of rural people in general and the tribals in particular. The living condition of tribals can be improved apparentlyy by providing assured source of income in order to meet the minimum essential requirements of life. The tribal are resource poor but hard working people. National Commission on Agriculture had rightly observed that dairying as an additional enterprise is an instrument of great significance for improving the socio-economic condition of weaker sections of rural population specially the tribals. The organized dairy industry in the country is surviving primarily on the basis of milk produced by small milk producers. Tribals families have facility of surplus manpower in the family in the form of women, who normally are looking after the milch animals and other activities.

Dairy development in India has been acknowledged as one of the most successful programmes of the world. The potential of dairy sector in the country need to be harnsed not only to meet the domestic requirements but also to exploit the export potential. The use of modern dairy practices required financial investment. The poor socio-economic condition of tribals does not allow them to invest money on different aspects of dairy operations. Credit plays an important role in increasing productivity. Most of the times, one or other financial agencies viz., private cooperative and public sector financial institutions are available to provide short term and long term financial support for increased milk production. However, use of these institutions depends on personal awareness and experience of the people. Thus, the present investigation was undertaken to know about credit orientation of tribals dairy farmers.

METHODOLOGY

The study was carried out in the Ranchi district of Jharkhand having high concentration of tribal population. Two hundred (200) tribal dairy farmers were selected from eight villages situated in four development blocks by using multistage stratified random sampling technique. The investigation was conducted through interview method with the help of structured schedule to assess amount of credit, sources of credit and purpose for which credits were taken by the respondents.

RESULTS AND DISCUSSION

Credit pattern of tribal dairy farmers, studied in terms of amount of credit taken, sources of credit, and purpose of credit, has been described below :

Amount of credits taken

It is revealed that 38 per cent of tribal dairy farmers had not taken any credit. About 32 per cent respondents had taken credit of more than Rs. 6000, followed by 13.5 per cent farmers (13.5%) who had taken credit ranging from Rs. 2001 to 4000. Only 11.5 per cent respondents were those who had taken credit upto Rs. 2000. Mere 5 per cent tribal dairy farmers had taken credit ranging from Rs. 4001 to 6000.

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