Role of Women in Pest Management in Andaman

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ABSTRACT

The studies were conducted across different locations comprising of south, middle and north Andaman based on proportionate random sampling to assess the knowledge level of farm women on pest management. The data were collected through personal interviews using a questionnaire. Most of the women and men farmers were 31 to 60 years old, married, and had a primary level education. Most were aware of pesticide health hazards and more than half reported that they sometimes experienced illness after spraying. About half had attended some form of pest management training. Most believed that pesticide applications would increase yields. The mean knowledge percentage of the farm women on pest management was relatively low as compared to men.

Key words: *Pest management; Women; Men; Pesticides;*

Women's important role in decision-making and allocation of household finances in many cultures alone warrants targeting them for the exposure in integrated pest management (IPM). What we know is that men and women spend money differently based on their different interests, risk exposure, and perceptions. Yet there are many obstacles to incorporating women in IPM programs in Andaman, ranging from traditional culture to the fact that gender influences access to resources such as land, labor, education and credit—all important to the adoption of IPM.

Pesticides are often not accessible to small-scale farmers and skill and knowledge in the sound use of pesticides is lacking. Pesticide misuse is therefore a significant health and economic risk to producers, consumers and the environment. Our main aim is to save money by using and applying the right and timely correct pest management even on small and smallest plots (home gardens). Agriculture, the single largest production endeavour in India is increasingly becoming a female activity. The increased injudicious use of pesticides not only pollutes the food chain but also have adverse effect on people's health and environment. At a time when global opinion is building up in favour of safer food, pursuing chemical control of pest will have to be reduced and integrated biological, eco-friendly and need based pest management have emerged as the most suitable options. Farm women have an important role in the said aspect. In homestead land farm women play a major role in the production of different crops and are more inclined for organic food production. The purpose of present study is to explore perceptual and knowledge differences between men and women of pest management in Andaman, and to use this information to improve IPM program design and delivery. Specifically, the study assesses gender-differentiated access to resources, decision-making, division-of-labor, perceptions of pest problems and current roles in pest management.

METHODOLOGY

The studies were conducted across different locations comprising of south, middle and north Andaman based on proportionate random sampling. A multistage sampling procedure was used to select eight villages in two districts in Andaman. In each district, 4 villages were selected. A systematic random sample of 10 farmers was selected from each village, totaling 40 interviews in each district, and 80 interviews in all.

The data were collected thr ough personal interviews using a pre-tested questionnaire. Most of the women and men farmers were 31 to 60 years old, married, and

had a primary level education. Most were aware of pesticide health hazards and more than half reported that they sometimes experienced illness after spraying. About half had attended some form of pest management training. Among the untrained women farmers, most expressed lack of interest to attend training because they had no time. Most believed that pesticide applications would increase yields. A completely randomized design was used to compute the data. The data were analysed by using the statistical computer programme.

RESULTS AND DISCUSSION

The mean knowledge percentage of the farm women on pest management was found to be 46.05 whereas it was 53.95 for men. The data on knowledge level on sub-items under pest management revealed that nearly 92.86 per cent of the respondents had knowledge on sun drying of food grains and 71.43 per cent of farm women had knowledge of growing marigold as trap crop and growing *samalu* and *neem* on borders of their farms. These technologies were practiced traditionally by the farm women. The rich traditional wisdom of farm women together with the knowledge gained from friends, family members, relatives and neighbouring farm women might have resulted with high level of knowledge on these practices. This finding is in conformity with the findings of *Janaki Rani (2004)*.

The other technologies wherein the farm women had low and medium level of knowledge were *viz.*, monitoring of pest (23.21%), hand picking of larvae (51.79%), use of light traps/fire traps (51.79%), destruction of damaged fruits (41.07%), conservation of natural enemy (48.21%), use of Bt/NPV/fungus formulations (53.57%), use of *neem* formulations (51.79%), use of chemical insecticides (25%), application of chemical insecticides (12.50%), awareness about chemical insecticides (53.57%) etc. (Table 1). Lack of interest, lack of skill and inadequate efforts of the farm women to gain knowledge on these activities might be the reasons for their low level of knowledge. The finding on low level of knowledge on pest management derives support from the findings of *Noorjehan (1999) and Jeyalakshmi and Govind (2008)*.The reason for the low knowledge level among the farm women might be due to lack of exposure among farm women about plant protection measures and in addition these technologies were mainly performed by men farmers. As a result, women farmers did not take much effort to acquire more knowledge about these technologies.

A summated ratings scale consisting of four attributes of IPM was devised to measure farmers' knowledge of IPM (Table 2). Closer investigation of this knowledge difference indicates that women were significantly more knowledgeable about possibl 53.95e negatives effects from pesticide use, and had more knowledge of alternative pest control measures and beneficial insects. Whereas men were more likely to

Table 1. Practice wise knowledge level of farm women on sustainable plant protection practices

Component of pest Manegement	Activity	Percent share	
		Women	Men
Cultural control	Summer ploughing	17.86	82.14
	Use of certified seeds	33.93	66.07
	Time of sowing	75.00	25.00
	Judicious and proper application fertilizers	30.36	69.64
	Water management related to pest management	35.72	64.28
	Weed management	51.79	48.21
	Crop rotation	53.57	46.43
	Trap crop	71.43	28.57
	Post harvest including sun drying	92.86	7.14
Mechanical control	Monitoring of pest	23.21	76.79
	Hand picking of larvae	51.79	48.21
	Use of light traps/fire traps	51.79	48.21
	Destruction of damaged fruits	41.07	58.93
Biological control	Conservation of natural enemy	48.21	51.79
	Use of Bt/NPV/ fungus formulations	53.57	46.43
	Use of neem formulations	51.79	48.21
Chemical control	Use of chemical insecticides	25.00	75.00
	Application of chemical insecticides	12.50	87.50
	Awareness about chemical insecticides	53.57	46.43
Overall awareness about IPM		46.05	

Table 2. Knowledge of pest management among males and females of Andaman

Variables	Gender	Rating scale						CD
		0	1	2	3	4	5	(P≥0.05)
Knowledge beneficial								
	Female	46.42	21.43	17.86	3.57	5.36	5.36	2.26
		(42.94)	(27.56)	(24.95)	(10.94)	(13.44)	(13.44)	
	Male	17.86	21.43	23.21	25.00	12.50	0.00	2.22
		(24.95)	(27.56)	(28.79)	(30.00)	(20.70)	(4.05)	
Awareness of alternatives								
	Female	19.64	21.43	25.00	23.22	10.71	0.00	2.41
		(26.28)	(27.56)	(30.00)	(28.79)	(19.09)	(4.05)	
	Male	3.57	17.86	28.57	30.36	12.50	7.14	2.64
		(10.94)	(24.95)	(32.33)	(33.46)	(20.70)	(15.45)	
Negatives of pesticide use								
	Female	0.00	8.93	12.50	32.14	30.36	16.07	2.5
		(4.05)	(17.36)	(20.70)	(34.51)	(33.46)	(23.66)	
	Male	0.00	5.36	8.93	30.36	28.57	26.78	2.36
		(4.05)	(13.31)	(17.36)	(33.46)	(32.33)	(31.18)	
Define IPM								
	Female	21.43	23.22	30.36	10.71	14.28	0.00	2.30
		(27.56)	(28.79)	(33.46)	(19.09)	(22.22)	(4.05)	
	Male	5.36	19.65	28.57	32.14	12.50	1.78	2.81
		(13.44)	(26.28)	(32.33)	(34.51)	(20.70)	(7.71)	
IPM Scale								
	Female	25.00	19.64	21.43	25.00	8.93	0.00	3.56
		(30.00)	(26.28)	(27.56)	30.00)	(17.36)	(4.05)	
	Male	3.57	8.93	25.00	30.36	21.43	10.71	3.85
		(10.94)	(17.36)	(30.00)	(33.46)	(27.56)	(19.09)	

Value in parenthesis are arcsine transformed values

state that pesticide costs were a negative, women were more likely to indicate that pesticide use could result in sicknesses and other health related effects from using pesticides. Men indicated that they made farming decisions or that they were made jointly with wives; whereas women indicated that they made the decisions or that they were made jointly with husbands. Men and women living with their spouses expressed this same association. Not surprisingly, when the perceptions of women only are examined we find that female headed households were more likely to indicate that women made the decisions than were females who were not heads-of households. Women are especially excluded as 'We need direct market linkages, access to quality seeds, pesticides, pheromone traps and fertilizers. Then only agriculture will remain viable.' (*Synder, 1990; Saito et al., 1994*).

Mainly pest management decisions appear to be made by the household head, whether that person is a male or female. However, this study provides little evidence to support the assertion made by *Malena (1994)* that women play a predominant role in pest management. Women also have great knowledge of dimensional attributes of IPM, particularly awareness of potential harmful effects of synthetic pesticides. Thus targeting women may expedite adoption of IPM. Women who said they were applying pesticides were living without a male in the household and tended to be older. Finally, there was no significant difference between men and women on the number of pesticide application per season and on their attitudes towards pesticides. Overall, both men and women had favorable attitudes about pesticides indicating they would like to use more of them. However, men had slightly more favorable attitudes about pesticides than women.

Women's knowledge of pests and crop specific management knowledge does not appear to greatly differ from the knowledge of men. Women's local knowledge of pesticide hazards may explain why men are responsible for pesticide purchases and application. Thus strategies that would advocate a primary focus on women would appear to not be justified. However, if a priori knowledge of IPM indicates awareness of a need, and this awareness is linked to adoption of IPM practices then a case could be made for targeting those with knowledge of IPM, which in this case are women, to expedite adoption of IPM. Although extension agents are important sources of information for both men and women, men appear to have greater access to exogenous sources of information. The implications are that gender based knowledge and perceptual differences need to be assessed and incorporated into agricultural research and extension program delivery *(Staudt, 1987 ; Von Braun and Webb, 1989).* Sources of information on pesticide usage also vary by gender with men appearing to have greater access than women to alternative and exogenous sources of information. These knowledge differences between men and women need to be recognized and built into extension programs on pesticide use and safety.

CONCLUSION

The main implication of this study is that gender based knowledge and perceptual differences need to be assessed and incorporated into agricultural research and extension program delivery if these programs are to have meaningful and sustainable impacts. Findings of this study revealed that the overall knowledge of farm women on sustainable plant protection technologies have an important role in pest management in home gardens. Findings of this study revealed that special efforts have to be taken up to improve the knowledge level of farm women of Andaman on sustainable pest management technologies.

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