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Knowledge Level of Farmers Regarding Safety Issues of Pesticides

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ABSTRACT

Pesticides are an important aspect of agricultural practice in both developed and developing countries. This paper focuses on the farmers knowledge of pesticides and patterns of safety measures followed. The study revealed that majority of farmers have poor knowledge of pesticide safety labels and wear no proper protective clothing during spraying. This indicates the need for promoting greater awareness among farmers about pesticides through health education programs and need for promotion of use of protective clothing and equipment suitable for the tropical climate

Key Words: Pesticide, Spraying , Protective equipment, Knowledge level.

INTRODUCTION

Over the last 50 years, agriculture has deeply changed with a massive use of pesticides and fertilizers to enhance crop protection and production, food quality and food preservation. Pesticides are an important aspect of agricultural practice in both developed and developing countries and, despite the many technological advances brought by the modern intensification of agriculture, the increased yields were achieved primarily through the use of fertilizers and pesticides. Despite their popularity and extensive use, pesticidescause serious concerns about health risks arising from the exposure of farmers when mixing and applying pesticides or working in treated fields and from residues on food and in drinking water for the general population have been raised . These activities have caused a number of accidental poisonings, and even the routine use of pesticides can pose major health risks to farmers both in the short and the long run and can degrade the environment. Being the principle polluters and victims of pollution, farmers are at the top risk. Moreover, Singh (2013) indicated that most of the recommended brands of the pesticides were not available in the market. As a result of which farmers were helpless in adopting the recommended spray schedule for the control of attack of various insect pest and diseases on various crops.

The World Health Organization (WHO) and the United Nations Environment Program estimate pesticide poisoning rates of 2-3 per minute, with approximately 20,000 workers dying from exposure every year, the majority in developing countries (Dasgupta *et al*, 2005).Therefore, the objectives of the present study were to evaluate the knowledge of farmers regarding the use of pesticides and pattern of use of preventive measures for the safe use of pesticides.

MATERIALS AND METHODS

The study was conducted in three Mandals i.e. Kowthalam, Aluru and Holugunda mandals of Kurnool district covering 21 villages where the major crops grown were cotton and chillies. Cotton is one of the major agricultural systems on which small holder farmers use substantial proportion of pesticides and there is high level of pesticide usage in these mandals. The technique of stratified random sampling was used covering sample size of 300 farmers involved in pesticide application. Data were gathered using structured interview schedule

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Table 1: Distribution of farmers based on the knowledge of pesticide safety labels.

Sr. No.	True message of safety label	Correct	Partially correct	Wrong
1.	Expiry date	17	18	65
2.	Alert on possible danger of death	10	10	80
3.	Wear glasses to protect eyes	16	20	64
4.	Put on leg boots	10	20	70
5.	Put on hand gloves	12	19	69
6.	Protect nose and mouth	20	20	60
7.	Keep securely out of reach of children	10	10	80
8.	Proper method of spraying	2	5	93
9.	Wash after pesticide operation	3	20	77
10.	Wear breathing apparatus	0	3	97
	Average	10	14	76

and also direct field observations which analyzed using SPSS – 20 version.

RESULTS AND DISCUSSION

Knowledge of pesticide safety labels

The assessment of farmers knowledge on pesticide labels indicated that majority (76%) of the farmers have misinterpreted the safety labels especially knowledge on proper methods of spraying and wearing breathing apparatus while spraying is very poor. The labels that advice to protect nose and mouth was interpreted correctly by 20 per cent of farmers which is the highest among the correctly interpreted labels. Overall the knowledge on safety labels is very poor only 10 per cent of the farmers had awareness. Ninty per cent of the farmers consult dealers for any information on pesticides use. In terms of training Agri input companies have organized training sessions which focused on pesticide dosages, spraying operations etc. The findings in Table 1 indicate that a health education program promoting greater awareness among farmers and labourer about pesticides was highly needed. This awareness should tap the belief system. It should include relevant information that explicitly takes into account farmers beliefs and perceptions about pesticides and specific details of how pesticides can enter the body, who are those at risk and how they can reduce their exposure.

Method of application

Ninety percent of the respondents were using motorized Knapsack sprayer due to its easy availability and utility or suitability for their crops in spraying whose cost ranges from Rs 2,000/- to Rs 16,000/-. Only 5 per cent of the farmers were using hand operated Knapsack sprayer whose cost ranged between Rs 300/- to Rs 1,900/-.

Storage of pesticides

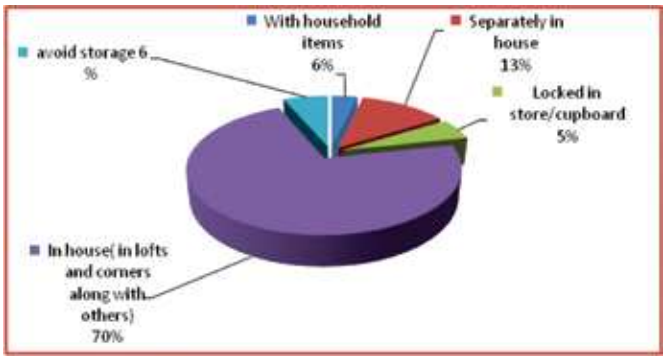

Figure: 1

As depicted in figure 1 majority of farmers store pesticides in house in lofts and corners along with other articles which are not regularly used. 6 per cent of the farmers store along with house hold items which is very dangerous and not recommended. 6 per cent of the farmers avoid storage due to its easy availability

Pesticide container disposal practices

The survey included questions mostly related to the management and disposal of left over pesticides and empty (used) pesticide container. Proper rinsing is necessary so that it may not contaminate the surrounding atmosphere and ground water. Most of the pesticide applicators (62%) sold the empty containers without proper rinsing/washing which is not acceptable. Whereas 22% of the respondents were using empty containers for domestic purpose after well rinsing, which is also not a healthy practice. The remaining respondents left empty containers in the field after use, which is also not acceptable.

Protective clothing and Safety measures

Only 40 per cent of the farmers recognized the consequences of spraying against the wind or when the speed of wind is high. They took precautionary measures to observe the direction of the wind before they begin spraying. Rest 60 per cent did not follow right direction with respect to wind direction which may increase their exposure to pesticides.

Fig 2

Majority (70 %) reported to be not wearing any form of protective clothing. They wore only *Lungi* and *Banian*. In 20 per cent of cases they tied a towel / Hand kerchief around the mouth and nose to prevent from pesticide exposure. Only 10 per cent protected themselves by wearing shirt and pant with long sleeves. There is no incident using of gloves and masks due to discomfort in hot weather and economic reasons . Poor protective clothing that exposed farmers to potential health risks cannot be attributed to lack of information alone, but on other factors such as accessibility and cost of procuring protective equipments.

CONCLUSION

Many farmer and labourer are exposed to pesticide hazards, which they could reduce if they had more information about health hazards and appropriate safety measures. A health education program promoting greater awareness among farmers about pesticides is highly needed. There is scope for both government and non-governmental organizations (NGOs) to work on this issue and even the pesticide industries should also provide information on pesticide hazards and precautionary measures. In addition to safety issue, the promotion of integrated pest management (IPM) which has potential to reduce the quantity of pesticide use may help reduce the risks. Similarly, use of protective equipment suitable for tropical climate should be promoted.

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