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# A STUDY ON QUANTITATIVE USE AND KNOWLEDGE OF FARMERS IN WESTERN RAJASTHAN REGION

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## ABSTRACT

*Pesticides have substantially contributed for controlling of pest and increasing crop yields but over the years there is growing concern about random use of pesticide. Western Rajasthan region is the potential area for the agricultural production and serves as pocket for the vegetables surrounding area. Small scale farmers in this area grow vegetables that include tomatoes, cucumber, chilli, ladyfinger, cabbage, brinjal etc. and use many types of pesticides to control pests and diseases that attack these crops. Maximum percentage of farmers also uses the manure in their fields besides chemical pesticides. Farmers of western Rajasthan area were interviewed about the type and source of pesticides they use in vegetables, the frequency of application, the use of protective clothing and cases of pesticides poisoning. Excessive use of pesticides and handling practices may potentially result in high farmer exposures and health effect. Maximum respondents complained about discomforts regarding the health problems such as skin and the respiration.*

***Key words: Environment, Farmers, Health, Pesticides, Vegetables, Western Rajasthan.***

## I INTRODUCTION

All over the world, the use of pesticides is the most common method for controlling pest. The Western Rajasthan is considered to be the most progressive and is characterized by vegetable production system and is well endowed with efficient network of irrigation system. A wide range of pesticides is used for pest management and vector control in agricultural, but many farming communities in Western Rajasthan region are not adequately informed about the hazards associated with the chemicals. As a result, farmers use pesticides without full understanding of their impact on human health and the environment [1]. Humans come into contact with pesticides, whether in the field, during pesticide application, weeding, pruning, harvesting, re-entry to collect fire wood or vegetables, or in their homes, to kill mosquitoes, cockroaches, fleas and flies. Storing pesticides may lead into acute and/or chronic exposures, with adverse health consequences [2].

## II OBJECTIVE

The general objective of the study was to assess scenario of the pesticides use in the vegetables of the area and its impact on the socioeconomic status. The specific objectives are listed as under:

- To assess the amount of pesticide used in that area.
- To document different types of pesticides that are being used in the study areas.
- To generating data to be used to develop a tool to collect information on cost of pesticides usage.
- To raise awareness and seek solutions of agriculture related environmental issues for ensuring a safe (minimizing the use of environment prone chemicals, pesticides etc.) and sustainable agricultural development

This paper reports findings on practices and use of pesticides by small scale vegetables farmers in Western Rajasthan region.

## III METHODOLOGY

### 3.1 Study Area

Western Rajasthan covers an area of Jodhpur, Jaisalmer, Barmer, Bikaner etc. Vegetable production has become very popular in many parts of that area. Especially, Western Rajasthan is very popular pocket for growing different vegetable crops, which are sold at good prices in other nearby towns. Many people, who are concerned about the abuse of pesticides, are frightened to consume the crops (especially vegetables) grown Western Rajasthan area. Since there is very limited facility for pesticide residue analysis in the country, it is difficult to judge the amount of pesticide residue present in the plants, soil and water around the treated area.

### 3.2 Literature Review

Different literatures regarding the study areas and other relevant documents were reviewed. The library of CAZARI and Agriculture University, Jodhpur was consulted for different relevant research papers and journals regarding the pesticides and agriculture including the study area.

### 3.3 Preliminary Field Visit

Preliminary field visit was conducted so that the general scenario of the environment can be studied. In the preliminary field visit, the general background of the study area was also obtained and different personalities in the study area. The research was conducted in coordination with the local people as well as local authorities.

### 3.4 Target area and Questionnaire survey

It consisted of interviews with farmers and farm workers in western Rajasthan area where vegetables were mostly cultivated using farm inputs, particularly pesticides. The sample farmers from whom information was collected comprised of some small-scale farmers selected from the Jodhpur, Jaisalmer and Barmer. The sites were selected based on vegetables grown, pesticide usage, ease of accessibility. No sophisticated instruments are

used for the purpose of study, as the study was confined in the management system no laboratory analysis was carried out. Only the questionnaire survey, informal discussions, unstructured questions and field visit was done. The questionnaire focused on the assessment of knowledge, attitudes and practices of these farm workers regarding the safe use of pesticides, practices of pesticide handling and spraying and the identification of the most prominent health related issues in the area [3, 5].

## IV. RESULT AND DISCUSSION

### 4.1 Pesticides Use in the area

In the study site, farmers use pesticides mostly on standing crops in the field. Maximum percentage of farmer also uses the manure in their fields besides chemical pesticides. Similarly 66% of the farmers apply the pesticides regularly, only 27% apply occasionally. Only 7% who do not apply any pesticides in the fields. In the study area, farmers use pesticides mainly on the following vegetables for controlling various insect pests and diseases: potato, tomato, cauliflower, brinjal, chilli, lady finger and cucumber. In the areas chilli cauliflower, brinjal tomato and cucumber are the important vegetable crops in terms of pesticide use.

### 4.2 Marketing of Pesticides

The farmers buy pesticides from the following retailer: agro-vet shop, local agro-shop, and farmers' cooperatives in consultation of Kisan Seva Kendra (KSK) or local agro vet shopkeepers. So the pesticides are locally available.

### 4.3 Farmer Perception on Pesticides

Almost all the respondents reported that the use of pesticides and chemical fertilizer in the crops has increased the crop production. They complain that without the use of the pesticides, the crops in this area cannot be grown well and the insects and mosquito in the area which destroyed all the crops. This compelled them to use the pesticides. Similarly, all of them said that along with increase in the vegetable production, the amount of pesticides and investment on pesticides has also increased.

### 4.4 Types of pesticides used by farmers

The study showed that, of the different pesticide formulation types used by farmers in the area most were insecticides (61%), fungicides (26%) and herbicides (13%).insecticides used included cypermethrin, deltamethrin, permethrin, chlorpyrifos, acephate, triazophos, malathian, quinolphos etc.

### 4.5 Use of Protective Measures and Practices

The adoption of safety measures during and after pesticide application is very important factor for preventing against harmful impacts of pesticide. The various safety options could be use of gloves, masks, long sleeved cloth, glass, long boots etc [4]. The present study showed that 51% of total interviewed farmers used none of the safety measures, 43% of the respondents use the mouth covers such as masks and cloths on mouth, 6% of them

use the gloves, only very few use both the mouth cover and gloves in combination. This may put them in the risk of pesticides and the health of these people is not secure of the disease caused by the inhalation, ingestion and absorption via skin. This may lead to occupational health hazards [6]. On the other hand; they also do not use any protective measures during the preparation of pesticides in pump. Similarly, most of the respondents wash the hands with the soap of water. The people are conscious about the hand washing but the procedure of the hand washing is not satisfactory. 85% of them use the soap and water for hand washing. Also only 15% if them use simple water for hand washing. This may clean up the pesticides traces in the hands but cannot clean up completely.

**4.6 Pesticides Appliances**

Pesticides are applied using very simple manual appliances such as sprayers and dusters. But in this area, the hand compression (usually 9-litre capacity) and the knapsack sprayer (16-litre capacity) are very commonly used. In the absence of a sprayer, locally made brooms are used. Similarly, in the absence of a duster, pesticide dust is spread over plants and soil surface by hand. The ground water is used for the preparation of pesticides.

## V. CONCLUSION

This study provides valuable information on the pesticides used, exposures and perceptions on pesticides used, trends and health symptoms by small scale vegetable farmer. The other reasons for high use of pesticides are their cheapness and very low share in the total cost of production of the crops. The farmers have very low knowledge on pesticides and the pesticide regulations have not been enforced properly. For improving this situation, the awareness of the farmers needs to be raised towards pesticides, their alternatives and IPM and enforcing the regulation by the government as well as several developmental agencies. There are strong indications that there are human health problems that are associated with the use of pesticides in Western Rajasthan region. This made them in the verge of hazards which may be long term or short term. In this context, there is urgent need of the awareness among the farmers and the community regarding the pesticides issues.

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