



RESEARCH ARTICLE

HEALTH HAZARDS FACED BY VEGETABLES GROWERS IN USING PESTICIDES IN NADIA DISTRICT OF WEST BENGAL

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ABSTRACT

Farmers who are cultivating vegetables, they are using maximum numbers and amount of pesticides compared to cereal crops per unit area. Plant protection is an exercise basically followed in any crop for control of insect-pests, diseases, weeds etc. to avoid economic losses. For proper application of pesticides – there are specific recommendations. Due to lack of awareness of farmers regarding those recommendations, they are using pesticides deviating its proper processes and considerations. As a result, they are facing health related problems. Keeping all these in view the present study was designed with objective to know the health hazards caused by chemical pesticides use by the vegetable growers. The present study was conducted in Nadia district of West Bengal. Nadia district was purposively selected for the study and Chakdah community development block of Kalyani sub division was randomly selected for the study. Rautari gram panchayat was selected randomly from all the gram panchayats of Chakdah community development block. Three villages namely Teghara, Ruppur and Rameswarpur was selected purposively as the villages were in close proximity. Complete enumeration of the farmers in the villages was attended. Farmers who were available up to three times were included in the sample. In this way 73 brinjal growers from Teghara, 62 pointed gourd growers from Ruppur and 69 cauliflower growers from Rameswarpur were selected for the study who grow crops in parcels of plots under bigger common field. In the present study, health hazards faced by the vegetable growers regarding the use of chemical pesticides were calculated. From the study it was observed that 48.03% and 51.47% respondents did not face any health issues during and after chemical pesticide application respectively. The main issues faced while applying pesticide were skin irritation (10.29%), eye irritation (13.23%), headache (9.31%) etc. and the issues faced after application of chemical pesticides include weakness (21.07%), vomiting (9.80%), skin irritation (7.84%) etc. To avoid the unnecessary use of pesticides, regulations regarding the use of pesticides and proper verification of the procedure should be carried out. Creation of awareness on the basis of family based training, sensitization through value and ethics based capacity building and utilization of religious and community leaders in this regard may be useful to overcome the issue. Various health hazards faced by the vegetables growers during and after application of the chemical pesticides were recorded. Therefore, the base level extension agencies should take proper measures on the basis of findings of the study to make their further extension programme more effective and steps should be taken to change the perception of the vegetable growers regarding the use of the safety measures.

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INTRODUCTION

Agriculture is of outmost importance for the vast number of people of this country as it is the largest component of India's economic life. Since crop production is being influenced by a large number of factors it is often impossible to measure all possible factors in every crop management unit. But some of these factors need attention in recent times for betterment of our environment. Agriculture being the backbone of Indian economy has a crucial role to play in the country's economic development. India ranks second worldwide in farm outputs and as a predominant rural economy it shares 50 percent of its work force in agriculture and contribution of agriculture in Indian economy is 18 percent.

Plant protection may be defined as the adoption of measures to prevent damage to plants from pests, or to arrest, minimize or obliterate it, once it has occurred. It includes the use of physical, mechanical, cultural, biological, chemical and legal measures to control pests. Plant protection is an exercise basically followed in any crop for control of insect-pests, diseases, weeds etc. to avoid economic losses. Reports indicate that the losses range from 20-30% by each of the insect-pests, diseases and weeds, but on an overall estimation, about 30% average cumulative loss by them appears a fair estimate. This resulted in taking suitable control measures to keep these losses to the minimum (Muthuraman and Kumar, 2013). One of the important plant protection measures is the use of pesticides. The term pesticide encompasses all chemical substances used for the control of

pests. According to usage they are classified as insecticides, fungicide, herbicide, molluscicides and antibiotics. Most pesticides are used to serve as crop protection products which in general, protect the plants from weeds, fungi, or insects. The economic implications of the crop damage and crop loss due to pest incidences have forced many Indian farmers to adopt frequent pesticide applications. Pesticides are considered responsible for the agricultural growth as its benefits associated with improved crop yields. That is the reason behind extensive use of pesticides. It has taken place in the last few years. The unnecessary use of pesticide to meet the ever rising quest for higher profit has resulted in several ecological and environmental consequences as well as unsafe practices in farming sector. The percentage of pesticide used on vegetable crops in the country is regularly increasing for the years. From 13-14% of the total pesticide use in the 1990s (Sardana, 2001) it has reached to 21% in 2010-11. Vegetables are very common diet of the inhabitants of West Bengal as well as Indians in general. As a result of this, the quality of vegetables we eat is a big factor regarding our health issues. So, we need to understand the pesticide use pattern followed by the vegetable growers. The use pattern will reflect the knowledge of the vegetable growers regarding the spraying mechanism, proper doses, time of spraying and time interval needed to be followed while spraying pesticides, awareness regarding type of damage; identification of pest and proper plant protection measures. Keeping all these in view the present study is designed to have an assessment of occupational health issues of pesticide handlers i.e. daily wage labours, farm men or women. Their awareness level regarding the safety measures needed to be taken while handling plant protection chemicals is also an aim of this study. Therefore, the objective was- to know the health hazards caused by chemical pesticide use by the vegetable growers.

MATERIALS AND METHODS

The present study was conducted in Nadia district of West Bengal. Nadia district was purposively selected for the study. Under Kalyani sub-division of this district, Chakdah community development block was selected randomly for the study. Under this block, Rautari gram panchayat was selected randomly from all the gram panchayats. Under Rautari gram panchayat, three villages namely Teghara, Ruppur and Rameswarpur were selected purposively as the villages were in close proximity. Complete enumeration of the farmers in the villages was attended. Farmers who were available up to three times were included in the sample. In this way 73 brinjal growers from Teghara, 62 pointed gourd growers from Ruppur and 69 cauliflower growers from Rameswarpur were selected for the study who grow crops in parcels of plots under bigger common field. In this way total 204 respondents were selected. The reason for selecting the area was • Nadia district is one of the leading vegetable growing areas of west Bengal. • Farmers were habituated in handling different pesticides. • Acquaintance with the local people and language. • The respondents were highly cooperative and responsive. • The concerned areas were easily accessible in terms of transportation for the researcher. • The area was homogeneous in respect of socio-cultural and biophysical conditions which have bearings on crop cultivation in general and plant protection in particular. Pesticide consumption has close relationship with pest and disease infestation. Within a close proximity pest infestation is relatively homogeneous in nature. To maintain this homogeneity in micro climatic condition the areas with close proximity were selected.

RESULTS AND DISCUSSION

Health hazards faced by vegetable growers:-In the present study, health hazards faced by the vegetable growers regarding the use of chemical pesticides were identified. The results related to the problems faced by the vegetable growers while handling chemical pesticides are presented in Table-1 and Table-2 after application effect. The respondents reported a number of health issues faced by them during the application of pesticides and after the application of pesticides. The problems included weakness, skin irritation, vomiting, headache, itching etc. Atreya (2008), Sharma, et al. (2018), Kori, et al.

(2018) reported similar kinds of problems faced by farmers as a result of improper chemical pesticide handling and using. From the study it was observed that 48.03% and 51.47% respondents did not face any health issues during and after chemical pesticide application respectively. The main issues faced while applying pesticide are skin irritation (10.29%), eye irritation (13.23%), headache (9.31%) etc. and the issues faced after application of chemical pesticides include weakness (21.07%), vomiting (9.80%), skin irritation (7.84%) etc.

Table 1. Health hazards faced by vegetable growers during application of chemical pesticides: (N=204)

Sl.	Various problems faced by respondents during application of pesticides	Number of respondents reported	Percentage of respondents reported
1	Weakness	8	3.92
2	Skin irritation	21	10.29
3	Vomiting	4	1.96
4	Headache	19	9.31
5	Itching	18	8.82
6	Eye irritation	27	13.23
7	Shortness of breathe	6	2.94
8	Drowsiness	3	1.47
9	No problem	98	48.03

Table 2. Health hazards faced by vegetable growers after application of chemical pesticides: (N=204)

Sl.	Various problems faced by respondents after application of pesticides	Number of respondents reported	Percentage of respondents reported
1	Skin irritation	16	7.84
2	Vomiting	20	9.80
3	Weakness	43	21.07
4	Headache	11	5.39
5	Shortness of breathe	9	4.41
6	No problem	105	51.47

CONCLUSION

Pesticides have become one of the most important inputs in recent times in Indian agriculture. Increase in production of various crops is necessary to feed the growing number of masses and also to satisfy their number of needs in recent era. With the increase of production of vegetables, use of chemical pesticides to safeguard the produce has also increased. Non judicious use of chemical pesticides is affecting the ecological balance of the nature. Various health related issues are also coming out. The findings of the study suggest some important recommendations to bring a balance between pesticides used, yield, quality of produce and environmental as well as personal safety. The eagerness of getting maximum profit from the produce is making them neglectful to the fact that excessive usage of chemical pesticides can cause serious consequences. The unnecessary use of chemical pesticides create a number of problems i.e. destruction of beneficial organisms, development of resistant pest species, remaining of toxic residues in soil, plants, produces and water bodies and human and animal health hazards. Resistance to pesticides ensures increasing pesticide requirements. Due to lack of knowledge on the part of the farmers, higher than the recommended doses of pesticides are used and number of application is increased. Sometimes use of pesticide mix can also be noticed. These are not at all profitable for the farmers from their economic point of view. To avoid the unnecessary use of pesticides, regulations regarding the use of pesticides and proper verification of the procedure should be carried out. Creation of awareness on the basis of family based training, sensitization through value and ethics based capacity building and utilization of religious and community leaders in this regard may be useful to overcome the issue. Various health hazards faced by the farmers during and after application of the chemical pesticides were recorded in the study. Protective measures taken by the farmers at the time of handling of chemical pesticides was a prior issue in this study and negligence among the farmers regarding those measures were evident. So, steps should be taken to change the perception of the vegetable growers

regarding the use of the safety measures. To overcome these issues, attention is required at several points, some of which are discussed below: ▪ Development of biotechnological methods such as resistant crop varieties. Use of biological and physical methods of plant protection. Identification of beneficial organisms and multiplication of the organisms. ▪ Use of easy and cheap decontamination procedures. Development of situation specific cultural practices. ▪ Building a nationwide monitoring of pesticides residues in soil, water and food items. Proper survey of the pest life cycle throughout the year and forecasting of the situation. ▪ Tight laws regarding chemical pesticide use, manufacturing and marketing. Mandatory services by the pesticide companies for the cause of safe use. ▪ More funding to raise awareness regarding IPM technologies.. ▪ Training programmes for the farmers and pesticide dealers for proper usage and handling of chemical pesticides. In – field training of the farmers regarding safe handling and use of pesticides. ▪ Mass campaigning to create awareness among farmers, pesticide dealers and people about the dangers of pesticide toxicity and misuse. To make the farmers understand the detrimental effects of pesticide misuse

“The final principle of natural farming is NO PESTICIDES. Nature is in perfect balance when left alone.”-Masanobu Fukuoka

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