

PROBLEMS FACED BY VEGETABLE GROWERS IN USING PESTICIDES IN MURSHIDABAD DISTRICT OF WEST BENGAL

Hiralal Jana*

ABSTRACT

Pesticides indisputably are poisonous and their random use and abuse may result in ecological difference resulting in pest revival, provocation of minor pests, pesticides resistance, environmental pollution, carrying serious health hazards to man and animals. So, special emphasis was given in this study to assess the problems faced by the vegetable growers in application of pesticides on vegetable crops during and after application of pesticides. The study was conducted in Murshidabad district of West Bengal. For the selection of area and respondents, multi-stage random sampling technique and universe method were adopted. The study revealed that the main problems faced by the vegetable growers during application of pesticides were bad odour, breathing problem, weakness, vomiting, pain in body, headache, itching, and drowsiness whereas the main problems after application of pesticides were weakness, headache, feelings of burning of skin, vomiting, drowsiness and bad odour. Therefore, the vegetable growers must follow the precautions on pesticides use properly whereas government extension agencies, company personnel and NGOs must carry out more awareness programmes on pesticides use according to their level best.

INTRODUCTION

Indian pesticide market is the 12th largest in the world and stands first in Asian continent. India produces 90,000 metric tonnes of pesticides in a year with over 400 million acres under cultivation and over 60 percent of the country's population depends on agriculture as well as the country's economy mainly depends on the agriculture. India's 30 percent potential crop yield is damaged by the attack of insect-pests, diseases, weeds and rodents. The pesticides play a crucial role in protecting crops from damage both before and after harvest which helps to increase crop yields (Kundu and Wale, 2013). In India it is impossible to completely avoid pesticides usage in agriculture. Farmers are forced to use pesticides at different crop stages from planting to harvesting due to various biotic stresses. A large amount of pesticides are applied annually, however less than 5 percent are estimated to reach the initial target, with the remainder being dumped in soil, water, plants, animals and human beings (Nair, 2013). Intensification of agriculture through massive adoption of high yielding varieties, increased use of synthetic inputs like chemical fertilizers and pesticides, greater exploitation of irrigation potentiality of surface and ground

water resources and farm mechanization have largely been responsible for a spectacular achievement in the food grain production that we have achieved over last three decades. Increased use of pesticides has emerged as a potential source of danger to sustainability of environment that endangers the existence of all forms of life on this planet. Perils and pitfalls of pesticides have been well evidenced due to their residual toxicity in our food chain (Verma et al.; 2013). Among the all measures to raise the productivity level, plant protection is in central position. Plant protection is a basic exercise in any crop for control of insect-pests, diseases, weeds etc. to avoid economic losses. Among the various crops, in vegetables, the number of plant protection chemicals are used with maximum amount due to intensive application for the purpose of protecting them from attack of several insect-pests and diseases. Hence, the special emphasis was given in this study to identify the problems faced by the vegetable growers in application of pesticides on vegetable crops during and after application of pesticides.

RESEARCH METHODOLOGY

The study was undertaken in the State of West Bengal. For the selection of area and respondents of

* Assistant Professor, Deptt. of Ext. Education, NMCA, NAU, Navsari, Gujarat

the present study, multi-stage random sampling technique and universe method were adopted. At the first stage of sampling, Murshidabad district was selected among the 18 agricultural districts of the State purposively based on its' higher area coverage in vegetable cultivation. Out of 26 blocks of Murshidabad district, one block (i.e Baharampur) was randomly selected at the second stage of sampling. In the selected block (Baharampur) a relatively homogenous field cultivated with vegetable crops was chosen on the basis of the opinion of the agricultural input retailers. The farmers who were growing vegetables in that field were selected as respondents of the present study through total enumeration. Thus total 400 farmers ultimately considered as respondents of the study. The data were collected by personal interview method by using local language (Bengali) for getting their exact response and simple percentage method was used for analysis of data statistically to reach at meaningful results and conclusion.

RESULTS AND DISCUSSION

Level of education:

It is clear from the table-1 that majority of respondents (60%) in study area were illiterate. At the most 7 percent of growers had higher secondary and above level of education which indicates a positive sign of agriculture, which beckons more scientific cultivation in near future because they are the good adopter of agricultural technologies. Vegetable cultivation needs proper time management, following crop rotation, more scientific application of fertilizers, pesticides, irrigation water, weeding in proper time, thinning, harvesting in proper time etc. so, it is easy to say that educated persons in the field can be comparatively more suitable in dealing these activities.. More than one-fifth percent of respondents (21%) had upto primary level of education and remaining 12 percent of respondents had upto secondary level of education.

Own cultivable land and vegetable cultivable land:

The table-2 indicates that most of the respondents in study area were marginal farmers. At the most 37 percent of respondents had upto 1 bigha of cultivable land (3bighas=1acre), 23 percent of respondents had 1.1 -2 bigha of cultivable land, 24 percent of respondents had 2.1-4 bighas of cultivable land

whereas 8 percent of respondents each had 4.1-6 bighas and above 6 bighas of cultivable land.

Nearly one third percent respondents (31%) had upto 10 kathas (20 kathas=1bigha) of vegetable cultivable land, 30 percent of respondents had 10.1-20 kathas of vegetable cultivable land, 19 percent of respondents had 1.1-2 bighas of this land, 12 percent of respondents had 2.1-4 bighas of vegetable cultivable land whereas remaining 8 percent of respondents had above 4 bighas of vegetable cultivable land.

Experience in vegetable cultivation and experience in application of pesticides:

It is clear from the table-3 that at the most 36 percent of respondents had 11-20 years of experience on vegetable cultivation, in this respect other categories were-upto 10 years (29%), 21-30 years (17%), 31-40 years (10%) and remaining 8 percent of respondents had above 40 years of experience on vegetable cultivation. In case of application of pesticides, at the most 42 percent of respondents had 11-20 years of experience on application of pesticides in controlling insect-pests, diseases, etc. 24 percent respondents had upto 10 years of experience in this respect, 18 percent respondents had 21-30 years of experience and remaining 16 percent of vegetable growers had above 30 years of experience in application of pesticides. The respondents also reported that recently the farmers are using pesticides in massive scale and now-a- days cultivation is pesticide dependent along with other factors because the attack of insect-pests, diseases, etc. are more due to intensive cultivation, vagaries of weather etc. and above all highly profit mindedness of vegetable growers.

Sources of information regarding use of pesticides:

All the respondents (100%) reported that (table-4) they mainly got information in using pesticides from agricultural input retailers at the time of purchasing. Majority of respondents (82%) collected information from fellow farmers and it was a very traditional way of getting information. In the study area, more than half of the respondents (52%) collected information from neighbours (farming community) and 41 percent the respondents collected it from big farmers (opinion leaders). Nearly one-third of respondents' (30%) source of information was rela-

tives whereas 8 percent respondents collected that information from other information sources. These were Agricultural Development Officers (ADOs), Krishi Prayukti Sahayaks (KPSs), experts of agricultural university, company personnel or other agricultural field functionaries. After collecting the information from various sources, each respondent evaluated it in their level best and finally applied the appropriate one.

Problems during application of pesticides and problems after application of pesticides:

The respondents of the study area reported that (table-5) they faced many types of problems during application of pesticides. The various problems were - bad odour ((50%), breathing problem (55%), weakness (38%), vomiting (24%), pain in body (13%), headache (21%), itching(18%) and drowsiness (25%) In the study area, few respondents expressed their opinion that many problems arise due to application of pesticides in empty stomach and that they always applied the pesticides after eating. In case of problems after application of pesticides, the table-5 also indicates that 39 percent respondents had the problem of weakness, 35 percent respondents felt headache, 26 percent of respondents had the problem of feelings of burning of skin, 14 percent of respondents had the problem of vomiting, 13 percent

respondents felt drowsiness and 18 percent of the respondents had the problem of bad odour after the application of pesticides. The respondents opined that now-a days highly poisonous pesticides cause these problems up to a certain extent.

Problems created by chemicals after application of pesticides:

The table-6 indicates that maximum 67 percent of respondents replied that they felt comparatively more problem after application of Phorate 10G. In case of applying other pesticides, the respondents felt the problem after application of these pesticides were- Thiodan (12%), Cymbush (44%), Furadon (58%), Kritaf (53%), Sumidon (47%), Challenger (42%), Ekalux (31%) and Metacid (40%). Kumar et al. (2010) reported that majority of the respondents (75.76%) had the main constraint in using plant protection in pulse cultivation was non-availability of plant protection chemicals in the market. It was also seen from the study that 88.75 percent of the respondents had lack of knowledge about seed treatment whereas 82.75 percent respondents had lack of knowledge about insect-pests and diseases management. Patel et al. (2010) reported that 59 percent of the respondents had medium level of knowledge on pest and disease control measures, 22 percent of respondents had low level of knowledge whereas remain-

Table 1: Level of education

(n=400)

Level of Education	Number of respondents	Percentage of respondents
Illiterate	240	60
Primary level	84	21
Secondary level	48	12
Higher secondary level and above	28	7

Table 2: Own cultivable land and vegetable cultivable land

(n=400)

Own cultivate land (Bigha)	Number of respondents	Percentage of respondents	Vegetable cultivable land	Number of respondents	Percentage of respondents
Upto 1	148	37	Upto 10 Kathas	124	31
1.1-2	92	23	10.1-20 kathas	120	30
2.1-4	96	24	1.1-2 bighas	76	19
4.1-6	32	8	2.1-4 bighas	48	12
Above 6	32	8	Above 4 bighas	32	8

Table 3: Experience in vegetable cultivation and experience in application of pesticides (n=400)

Number years engaged in vegetable cultivation	Number of respondents	Percentage of respondents	Number of years engaged in application of pesticides	Number of respondents	Percentage of respondents
Upto 10	116	29	Upto 10	96	24
11-20	144	36	11-20	168	42
21-30	68	17	21-30	72	18
31-40	40	10	Above 30	64	16
Above 40	32	8			

Table 4: Sources of information regarding use of pesticides (n=400)

Sources	Number of respondents collected information	Percentage of respondents collected information
Retailers	400	100
Big farmers	164	41
Fellow farmers	328	82
Neighbours	208	52
Relatives	120	30
Others	32	8

Table 5: Problems during application of pesticides and problems after application of pesticides (n=400)

Problems during application of pesticides	Number of respondents	Percentage of respondents	Problems after application of pesticides	Number of respondents	Percentage of respondents
Bad odour	200	50	Weakness	156	39
Breathing problem	220	55	Headache	140	35
Weakness	152	38	Feeling of burning of skin	104	26
Vomiting	96	24	Vomiting	56	14
Pain in body	52	13	Drowsiness	52	13
Headache	84	21	Bad odour	72	18
Itching	72	18			
Drowsiness	100	25			

ing 19 percent of respondents had higher level of knowledge. In case of adoption recommended pest and disease control measures, only 68 percent of the

respondents adopted those measures. Parmer and Walia (2006) reported that integration of bio-fertilizers and organic manure with chemical fertilizers im-

Table 6: Problems created by chemicals after application of pesticides (n=400)

Name of chemicals	Number of respondents	Percentage of respondents
Thiodan	48	12
Cymbush	176	44
Phorate 10G	268	67
Furadon	232	58
Kritap	212	53
Sumidon	188	47
Challenger	168	42
Ekalux	124	31
Metacid	160	40

proves crop nutrient efficiency, similarly integration of botanical pesticides, bio-pesticides and bio-control agents with need-based use of safer chemical pesticides is vital for environment friendly pest control.

CONCLUSION

The study reveals that vegetable growers were facing various health problems in pesticides use. The main problems faced by the vegetable growers during application of pesticides were bad odour, breathing problem, weakness, vomiting, pain in body, headache, itching and drowsiness whereas the main problems after application of pesticides were weakness, headache, feelings of burning of skin, vomiting, drowsiness and bad odour. Pesticides are poisonous substances; their use and misuse are cause of soil, air and water pollution as well as cause of health hazard of man and animal. To save the environment and to protect the health of man and animal various precautions are needed to follow for proper use of these chemicals. Another remarkable thing in this regard is that vegetable growers must change their attitude of "nothing will happen" especially on precautions; no taking food or smoking during application of pesticides, after application of pesticides to wash hands and legs by soap, opening the packets or bottles by using knife not by mouth, don't clean

the nozzle of sprayer machine through whiff, don't move anywhere leaving the pesticides in the field, do not re-enter in treated crop etc. In case of pesticides poisoning call a physician immediately. Awaiting the physician's arrival, apply the first aid. Above all, Govt. extension agencies, company personnel and NGOs should conduct more awareness programmes for enhancing farmers' knowledge level about various pesticides and their proper use for protecting the health of farmers who are protecting the health of nation and accelerating the progress.

REFERENCES

- Kumar, P.; Peshin, R.; Nain, M.S. and Manhas, J.S. (2010) Constraints in Pulses Cultivation as Perceived by the Farmers: *Rajasthan J. of Ext. Edu.* :18: 33-36
- Kundu, R. and Wale, S (2013) Role of Pesticides and their Management: *Agrobios Newsletter* : XI (8): 91-93
- Patel, G.R., Chauhan, N. M. and Tandel B. M. (2010) Impact Analysis of Training Regarding Scientific Cultivation of Brinjal: *Gujarat Journal of Extension Education*: XXI: 36-38
- Verma, N, Dubey, M and Gangwar, S. (2013) Organic Farming for Sustainable Agriculture: *Agrobios Newsletter* : XI (9): 31-32



Received : February, 2013

Accepted : January, 2014