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Awareness of vegetable farmers on safe use of pesticides in Medak district of Telangana

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Abstract

A field survey of 100 vegetable growers was conducted in four villages of Mulugu madal of Medak district of Telangana to know the awareness level of the respondents about safe use of pesticides and adoption of the recommended practices in vegetable production. From the study it was observed that, majority of the respondents were marginal land holders and all of them were cultivating vegetables in their farm lands. With respect to safe handling of pesticides, it was reported that, all are purchasing the pesticides from the input dealers, majority following safe measures while spraying of pesticides like use of face mask, gloves, turban and majority disposing the pesticide containers and taking bath after spraying of pesticides. More awareness and educational programmes by the Government departments would help in creating more awareness and greater promotion of safe handling of pesticides.

Keywords: Vegetables, recommended practices, adoption, safe use

Introduction

Diverse climate of India ensures availability of variety of fresh fruits and vegetables throughout the year. India ranks second in fruits and vegetable production in the world, after China. As per the Pocket Book of Agricultural Statistics 2019 published by the Directorate of Economics & Statistics, India produced 98.5 million metric tons of fruits and 185.8 million metric tons of vegetables with the area of 6.6 million hectares under fruits and 10.1 million hectares under vegetables.

Pesticides have become an integral part of cultivation and play major role in productivity of agriculture. The Indian pesticide market was worth 197 billion in 2018 and the market is further projected to reach 316 billion by 2024, growing at a CAGR of 8.1% during 2019-2024. The significance of pesticides has been increasing over the last few decades due to increasing demand for food grains to meet the requirements of the continuously growing population. In India, pests and diseases on an average eat away around 20-25% of the total food produced. Indiscriminate and extensive use of pesticides represents one of the major threats to public health and environment. Improper and inefficient use of pesticides can lead to secondary pest outbreaks, destruction of non-target species, soil, water and air contamination and residues in primary and derived agricultural products that endanger the environment and human health.

Safe use of pesticides depends on many factors; most important one is selecting the appropriate pesticides and using it according to the guidelines provided on the label. The pesticides are designed to kill different crop pests and are poisonous in nature, if used without proper precautions they adversely affect the farmers health and environment. The unsafe and indiscriminate use of pesticides in agriculture by farmers may be due to lack of information on pesticides hazards, lack of awareness about the safe use and handling of pesticides, lack of knowledge about risk from exposure to pesticides and most importantly, the accessibility of personal protection equipment. Though the guidelines for safe use of pesticides are in place as Do's and Don'ts and farmers are informed about safe use practices by public and private players, they rarely follow them. The health locus of control i.e., the degree to which individuals believe that their health is controlled by internal or external factors, can be one of the explanations of farmers unsafe behaviors related to pesticide usage (Lau 2011).

Keeping this in view, the present study was undertaken to know the extent of adoption of recommended practices of vegetable cultivation and safe measures in use of pesticides by the respondents.

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Material and Methods

A. Selection of area and Respondents

Medak district was selected purposively for the study as it is one of the major vegetable cultivating districts in the state. Three villages of mulugu mandal were selected by following the simple random sampling technique. The selected villages are, namely-Ksheersagar, Annasagar, Vaagunuthi and Kamalabad. A total of hundred farmers were selected from the above said four villages at the rate of twenty five farmers by following simple random sampling method for this study.

C. Data collection tools and procedures

The data were collected from the respondents through personal interview with the help of interview schedule. Necessary precautions were taken to ensure that the questions

in the schedule were unambiguous, clear, concise, complete, and comprehensive. The respondents were contacted in person mostly at the common place in the village.

D. Statistical Analysis

The data collected for the study was tabulated, processed and analyzed using simple statistical tools like frequency, percentages and rank order.

Results and Discussion

A. Farm size and area under vegetables cultivation

It could be observed from the results that, majority (35.00%) of the farmers had marginal farm size followed by small (30.00%), big (25.00%) and medium farm size (10.00%) in the study area.

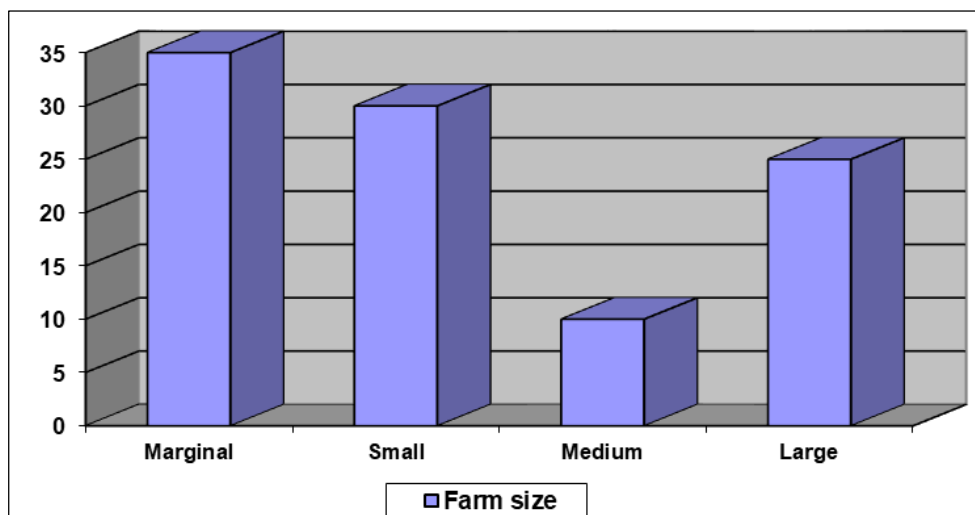


Fig 1: Distribution of respondents according to their farm size

Further, it was observed that, cent percent of the farmers were cultivating the vegetables and 55-75 percent of their total land area was allotted for the cultivation of the vegetables. Major vegetable crops cultivated by the farmers include Tomato, Brinjal, Bottle gourd, Ridge gourd, chillies, Bitter gourd, Cabbage and Cauliflower.

B. Safe use of pesticides

a. Number of pesticide sprays in a crop period

Table 1: Distribution of respondents according to the number of sprays in a crop period

S No	Item	Numbers in average
1	No of Sprays	11.00
2	Frequency (days)	6.00

From the study area, it was found that the farmers were going for eleven sprays during crop period on an average once in five to six days spraying has been done on the vegetables.

b. Proximity of input supply source

The results in the study indicated that cent per cent of farmers expressed that they had supply source within 10 km from village radius. But for few new molecules they are going to other nearby mandals as they are not available in their village and mandal.

c. Distance of the market

It was observed from the results that cent per cent of farmers could able to market their produce within 10 km radius of

their village. They are blessed with good market facilities by Govt as well as private agencies. State Government has established a Government vegetable wholesale market at Ontimamidi maintained by the Gajwel market committee which is within 10 km radius from the village and there are number of procurement centers of shopping malls namely, Reliance, Heritage, ITC, and More etc available and were procuring the produce directly from the farmers in the Ontimamidi village itself and selling through their respective super markets in Hyderabad and Secunderabad.

d. Opinion of the farmers about purchase and storing of pesticides

From the table 2, it could be observed that all the respondent farmers are purchasing pesticides from authorized dealer only and it was also observed that ninety one per cent of the farmers were storing the pesticides outside the house and only 9 percent of them are storing in the living house with precautions.

Table 2: Distribution of respondents according to their opinion about purchase and storing of pesticides

(n=100)			
S No	Item	Activity	Responses in percent
1	Purchase Pesticides	Authorized Dealer	100.00
2	Store Pesticide in	Living House	09.00
		Outside the House	91.00
3	Pesticides-Packing	Reading	31.00
		Not reading	69.00

It was also observed that, 69.00 per cent of the respondents were not reading the packing slip attached on the pesticide bottle and only thirty one percent of farmers were reading the pesticide packing leaflets and instruction on/inside the package. The results are in conformity with Rostami F (2019)^[4] and Abdulla and Salman (2013)^[5].

e. Opinion of the farmers on the use of recommended Personal Protection Equipment (PPE)

It was observed from the responses that all the respondents are using face/nose mask and about 88.00 per cent were using head dress followed by hand gloves and shoes (54.00%). The turban/towels are used as face/nose mask and head dress. Same results were reported by Damalas and Abdollahzadeh (2016)^[1] and Reddy *et al* (2011)^[3].

Table 3: Distribution of farmers according to their opinion about use of PPE

S No	Item of PPE	Responses in percent
1	Face mask/nose mask	100.00
2	Head dress/Turban	88.00
3	Hand gloves/Shoes	54.00

f. Opinion of the farmers about safe handling of pesticides

Table 4: Distribution of respondents according to their responses about safe handling of pesticides

(n=100)		
S No	Item	Responses in percent
1	Measuring cylinder	100.00
2	Mixing with stirrer	87.00
3	Drink/eat/smoke	78.00
4	Rinse empty container	100.00

From the above table 4, it could be concluded that, all the respondents were using the measuring cylinder for making an accurate dosage of spray fluid and mixing the chemicals using stirrer or a stick of locally available (87.00%) and cent per cent farmers rinsing the empty containers and seventy eight percent respondents did not resort to drink water/eat/smoke during spraying which is a good indication. Due to their awareness about the hazardous affects of the pesticides farmers resorted to use personal protection equipment like face mask, turban hand gloves and adopting safe techniques while spraying.

g. Opinion of the farmers about disposal of empty pesticide containers

Regarding the disposal empty pesticide containers, 72 per cent of them told that, they are burying in the field itself and other farmers reported that, they are cleaning and throwing in the field. No one is reusing the empty containers. The reasons expressed during discussions are quiet interesting to note that present day chemicals are available in small bottles in high concentrated forms (50ml, 100ml etc), hence they are of no use in daily routines and some expressed that the repeated advice from the field staff and other extension functionaries they are disposing in the field itself.

Table 5: Distribution of farmers according to their opinion about disposal of empty pesticide containers

(n=100)		
S No	Disposal method	Responses in percent
1	Burying in the field	72.00
2	Thrown on the open field	28.00
3	Re use for house hold purposes	00.00

h. Type of Sprayers used by the respondents

About 87 per cent of the respondents were using Taiwan sprayers and the rest are using hand sprayers. This might be mainly because of the Government's scheme on farm mechanization where they are supplying Taiwan sprayers on subsidized rates to all the interested farmers. The same results were quoted by Reddy *et al* (2011)^[3].

i. Knowledge on maintenance sprayers

About cent percent of the farmers expressed that they have knowledge on upkeep of the sprayers. 100 per cent expressed that generally wire used to remove obstacles. A good social responsibility also observed from the results that more than 80 per cent of the respondents are not using common canals for cleaning sprayers which otherwise a great source of water pollution.

It was also observed form the discussion with the farmers that, about 72 per cent of the respondents are taking bath and 84 per cent are changing clothes and only 25.00 per cent are aware of the colour triangle indication on the bottles. Regarding first aid, only 22.00 per cent respondents have the knowledge. Health problems expressed by very negligible per cent and many expressed that new generation chemicals do cause many health problems.

Conclusion

From the results depicted above it was obvious that majority of the respondents were using the personal protection measures like face mask, gloves, turban and it was also found that farmers were disposing the pesticide containers properly and not using them house hold purposes. Regular training and awareness programmes on safe handling measures would be useful in creating more awareness and minimizing the risk of pesticide exposure.

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