PESTICIDE USAGE ON VEGETABLE CULTIVATION IN MUTUR

DIVISIONAL SECRETARIAT DIVISION OF TRINCOMALEE

DISTRICT

BY

JEYANATHAN PRASANNA





FACULTY OF AGRICULTURE

\$

PR

Main Library, EUSL

EASTERNUNIVERSITY

SRILANKA

ABSTRACT

The wide intensification of agriculture using industrial models that grows annual vegetable crops in mono or poly culture is characterized by strong dependency of influxes. Pest management in particular relies heavily upon the use of synthetic chemicals. Common side effects of pesticides include not only resistance development but also environmental impacts on the diversity, composition and functioning of natural ecosystems throughout the world.

Like many other developing countries, pesticide related issues associated with pesticide usage are high in Sri Lanka. Trincomalee district is one of the vegetable cultivating area in Sri lanka. Muthur Divisional Secretariat (DS) division is the major vegetable producing area in Trincomalee district. Farmers in the study area using pesticide heavily and pesticide residues of fresh vegetables become major concern due to the safety and quality of these products for consumer. Having recognized the need, a questionnaire survey was conducted to find out pesticide usage practices of farmers on vegetable cultivation in Mutur DS division of Trincomalee District. Simple random sampling method was used to select respondents' for the survey and the collected data were analyzed statistically. The results revealed that more than 20 chemicals were used by farmers including insecticides and fungicides. About 91% of the farmers applied single pesticides and nearly 32% of the brinjal-producing farmers applied pesticide more than 22-times or more per cropping season. Further, 42% of the chillie producing farmers applied pesticide 10-18 times per cropping season and fungicides are routinely applied by most of these farmers, irrespective of the prevalence of pest and diseases. Around 40% of the farmers applied more than the recommended dosage of pesticides and about 80% of the farmers harvested vegetables with less pre-harvest interval than the recommendation. These problems cause serious illness in Trincomalee District. Due to the survey further revealed that there was no proper storage methods for pesticides and no protective measures were practiced by spray operators. Therefore, this study found out that farmers in the study area were ignorance on recommended pesticide usage practices. Hence, it is essential to educate the farmers about recommended pesticide usage practices, reduced usage of synthetic pesticides and the use of organic farming practices to reduce the ill effects to human and the environment.

V

| TABLE | OF | CONTENT |
|-------|----|---------|
| | ~. | COLUENT |

| ACKNOWLEDGEMENTS vi |
|--------------------------------------------------------------------|
| TABLE OF CONTENT |
| CHAPTER 01 I |
| 1.0 INTRODUCTION |
| 1.1 Objective of the study |
| CHAPTER 02 5 |
| 2.0 LITERATURE REVIEW |
| 2.1 Vegetable production |
| 2.1.1 Vegetables |
| 2.1.2 Importance of vegetables |
| 2.1.3 Vegetable production in the world |
| 2.1.4 Vegetable production in Sri Lanka |
| 2.1.5.a Vegetable production in Trincomalee District |
| 2.1.5.1 Major crops |
| 2.1.5.2 Problem faced by vegetable farmers in Trincomalee district |
| 2.1.5.3 Pest and diseases |
| 2.1.5.4 Farmers awareness |
| 2.2 Pest management |

| 2.2.1 | Pest management Techniques 15 |
|-----------|----------------------------------------------------|
| 2.3 Pest | icide |
| 2.3.1 | Definition |
| 2.3.2 | Toxicity of pesticides 17 |
| 2.3. | 2.1 Acute toxicity |
| 2.3. | 2.2 Chronic effect of pesticides |
| 2.3.3 | Advantages of the use of pesticides |
| 2.3.4 | Disadvantages of Pesticides |
| 2.4 Pest | icide usage |
| 2.4.1 | Worldwide Production and Consumption of Pesticides |
| 2.4.2 | Pesticide usage in SriLanka |
| 2.5 Pro | blems in usage of pesticide |
| 2.5.1 | Pest resistance to chemical pesticide |
| 2.5.2 | Resurgence of Pest |
| 2.5.3 | Pesticide residues |
| 2.5.4 | Reasons for residues |
| CHAPTER | 03 |
| 3.0 RESEA | RCH METHODOLOGY |
| 3.1 Desc | ription of the study area |
| 3.1.1 | Mutur |
| 3.1.2 | Sampoor |

| 3.1.3 | Kattaiparichan | | 9 |
|------------|--------------------------------------|-------|---|
| 3.1.4 | Pallikudiyiruppu | | 9 |
| 3.1.5 | Thoppur | | 9 |
| 3.1.6 | Ralkuly | | 9 |
| 3.1.7 | Munnampodiveddai | | 9 |
| 3.1.8 | Kanguveli | | 0 |
| 3.1.9 | Kiliveddy | | 0 |
| 3.2 Samp | oling technique | | 1 |
| 3.3 Data | collection | | 2 |
| 3.3.1 | Primary data | | 2 |
| 3.3.1 | .1 Questionnaire preparation | 32 | 2 |
| 3.3.1 | .2 Pre test | | 3 |
| 3.3.1 | .3 Questionnaire survey | | 3 |
| 3.3.2 | Secondary data | | 3 |
| 3.4 Data a | analysis | | 4 |
| HAPTER 0 | x . | | 5 |
| 0 RESULT | rs and discussion | | 5 |
| 4.1 Socio | - Economic status of the respondents | × | 5 |
| | | J. | |
| 4.1.1 | Marital status | | 5 |
| 4.1.2 | Age of the respondents | | 5 |
| 4.1.3 | Gender of the respondents | | 7 |

C

| 4.1.4 | Ethnicity of the respondents | |
|-----------------|------------------------------------------------|--|
| 4.1.5 | Educational levels of the respondents | |
| 4.1.6 | Occupational pattern of vegetable farmers | |
| 4.1.7 | Land holdings size of vegetable farmers | |
| 4.1.8 | Income of farmers | |
| 4.1.9 | Primary source of information | |
| 4.2 Majo | r vegetable crops cultivated in the study area | |
| 4.3 Pesti | cides usage in the study area | |
| 4.3.1 | Types of Pesticides | |
| 4.3.2 | Frequency of application | |
| 4.3.3 | Dosage of pesticide | |
| 4.3.4 | Mixing of Pesticide | |
| 4.3.5 | Number of Pesticide in a mixture | |
| 4.3.6 | Pre-harvest Interval | |
| 4.3.7 | Storage | |
| 4.3.8 | Disposal of empty container | |
| 4.3.9 | Protective measures adapted by farmers | |
| CHAPTER 05 | | |
| 5.0 CONCLUSIONS | | |
| 5.1 SU | JGGESTIONS | |
| CHAPTER (| | |