Annals of Sri Lanka Department of Agriculture 2015. 17: 332-335

Short Communication

PESTICIDE STORAGE, DISPOSAL AND USE BY THE VEGETABLE FARMERS IN THE MUTHUR DIVISIONAL SECRETARIAT DIVISION OF TRINCOMALEE DISTRICT

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INTRODUCTION

In the food crops sector of Sri Lanka, the vegetable sub-sector is the second most important sector, next to rice. Vegetables are produced throughout the year in Sri Lanka. Muthur Divisional Secretariat (DS) division is the major vegetable producing area of the Trincomalee district which has a total population of 56,379 and the total number of vegetable farm families are 1,676 those cultivate nearly 375 ha (DOA, 2014a). Farmers cultivate crops such as brinjal, okra, long bean, tomato and chilli to generate their income. About 2,894 t of vegetables from 229 ha of land and 4,305 mt of vegetables from 260 ha of land were produced during *Yala* 2013 and *Maha* 2013/14, respectively. Several pesticides are being used to produce vegetable crops in this DS division (Anon, 2014a). Safe disposal and storage of pesticides and use of protective mechanisms while application are essential to prevent potential ill-effects caused by pesticide usage. However, awareness of the farmers for safe level of pesticide usage and related issues are at minimum (Hariharan and Yamini, 2007). Therefore, this study was carried out to find out the pesticide storage, disposal and protective methods adopted by the vegetable farmers in the Muthur DS division of Trincomalee district.

MATERIALS AND METHODS

Nine Agriculture Instructor (AI) ranges namely, Ralkuly, Chenaiyoor, Sampoor, Pallikudiyiruppu, Muthur, Munnampodiveddai, Thoppur, Kiliveddy and Kanguvely were selected for the study. A group of 170 respondents (10%

of the farm families) were selected among the vegetable farmers through a random sampling method from the study area. Selected respondents were interviewed. Primary data related to storage of pesticide, disposal of empty pesticide containers, and protective measures used by farmers during the application were collected from the selected respondents by using a pre-tested structured questionnaire. Secondary data were also gathered from government institutions and related documents. The collected questionnaires were checked for completeness and the data were analyzed using SPSS 16.0. Data analyses were done using frequencies and descriptive statistics.

RESULTS AND DISCUSSION

Farmers in the Muthur DS division were affected by local conflict and tsunami disaster. Every vegetable cultivator has more than ½ ac of land. They cultivate vegetable crops at homegarden level. They handle with several types of pesticides for different crops in the study area (Anon, 2014b). The survey revealed that 47% of the farmers store pesticide container inside the cottage, where they eat and take rest. Around 27% of the farmers store the pesticide in house and making them easily accessible to children. There are no proper storage methods handled by farmers. The rest of the farmers store the chemical containers under the trees (14%) and put near the well (12%).

Disposal of empty pesticide containers is a safety concern and has environmental consequences. However, farmers in the study area were highly negligent in proper disposal of empty containers. It was also observed that there were no any safe disposal methods practiced by most of the farmers in the survey area. Majority of the farmers (48%) throw empty container inside the field. About 24% of farmers buried the empty containers into the soil. It is recommended that burying is the safest method (Nagenthirarajah and Thiruchelvam, 2008). Around 19% of the farmers used to put in disposal bins. Rest of the farmers reuses the empty pesticide containers. This showed that most of the farmers were having low-level of awareness about disposal methods of pesticide.

The pesticide containers are expected to be reused as described in the pesticide manuals. Therefore, after usage of pesticides, the empty containers should be disposed in proper safe way. When empty containers left on the field, during rainy season the remains will be washed and reach water bodies. Long-term low-level of exposure to pesticides by aquatic systems is mainly from pesticide washout from crop land (Lakshmi, 1993). Further the left outs could give chances for accidental intake of pesticides, especially by children, pets. Safe disposal of used pesticide containers is therefore important to reduce environmental pollution and in turn it will eventually protect the human health (Sutharsan *et al.*, 2014).

None of the farmer in the study area did not adopt precautionary measures of full body covers such as mask, goggles, respirator, gloves, hat and boots during spraying operations of pesticides. Plianbangchang *et al.*, (2009) reported that small scale farmers did not wear suitable personal protection, apply pesticides inappropriate fashion and discard the wastes unsafely. Sometime farmers have the knowledge on unfavourable effects of indiscriminate use of pesticides. But they do not practice due to market situation (Yassin *et al.*, 2002). Farmers' choice of pesticide was primarily based on efficacy rather than safety (Nagenthirarajah and Thiruchelvam, 2008). Therefore, it is essential to educate the farmers in the study area to practice safety measures while handling pesticides.

CONCLUSIONS

This survey revealed that the pesticide usage pattern in vegetable production in Muthur divisional secretary at of Trincomalee district is not at satisfactory level among the members of the farming community. Many did not practices recommended method of safe storing and disposing the pesticide containers in Muthur DS division. None of the farmers adopt protective methods while handling pesticides. Thus, awareness programs are essential to educate farmers on appropriate and safe use of pesticides enabling them control and prevent chemically caused ailments. This should be done by agriculture extension services through farmer field school, field campaign, crop clinics, mobile extension program, method demonstrations, and displaying cut-outs,

banners and posters on ill effects of pesticides in the rural areas for promoting famers for safe use of pesticides.

ACKNOWLEDGEMENTS

Author wish to express his gratitude to Department of Agriculture, Eastern Province for the support and encouragement.

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