A Study on Insecticide Use Patterns for the Safe and Sustainable Production of Chogun Tangerine (Citrus reticulata Blanco) in Southern Thailand
บทคัดย่อ

นั้นพืชพืชจำแนกฤทธิ์แบบต่างๆ ในการสัมผัสไอดูหนังของเกษตรกร ที่ต้องการ
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Abstract

Different types of insecticide mixtures were sprayed on a farmer's citrus orchards at Sadao District, Songkla Province during January 2004 to April 2005 to determine their effectiveness for controlling insect pests and their impacts on non-target insect diversity dwelling on soil surface and on weeds under citrus canopy. Two experiments were designed as randomized complete block (RCB) with five replications per treatment. The first experiment consisted of four treatments of the following insecticide sprays: petroleum oil+neem (0.1% azadirachtin), carbosulfan, imidaclorpid+malathion and abamectin+chlorpyrifos based on farmer's spray at 10-day interval at the recommended doses. Twenty five times of insecticide sprays were done during January to September 2005. Following the first experiment, the second experiment was carried out on the same plots during October 2004 to April 2005 by spraying insecticides based on the economic thresholds of citrus insect pests. Four treatments of insecticide mixtures of the 2nd experiment included petroleum oil+neem, carbosulfan+carbaryl, imidaclorpid+malathion and abamectin+chlorpyrifos at the recommended doses. Key insect pests i.e. scale insects, citrus leaf miners, citrus psyllids and citrus aphids as well as non-target insects under citrus canopy collected by pitfall traps and sweepings were compared among treatments before each spray. Cost of insecticide sprays among treatments was also analyzed in both experiments. The results showed that almost treatments gave an effective control against scale insects and citrus psyllids. However, carbosulfan and petroleum oil+neem could not control scale insects and citrus psyllids, respectively. Abamectin+chlorpyrifos which has been extensively used by farmers was the best effective mixtures for controlling all insects pests, but not significantly different from imidaclorpid+malathion. Therefore, imidaclorpid+malathion should be an alternative choice due to less toxicity when the LD$_{50}$ and lower cost of application was considered. Diversity of non-target insects under citrus canopy was not significantly different among treatments in both experiments. However, twenty five times of insecticide sprays in the first experiment had led to decrease the population of non-target insects dwelling on the soil surface. Using economic thresholds in the second experiment decreased the number of spray ranged from 19.0-38.1% as compared to 10-day interval spray. The citrus growers who currently face a high competition in citrus production should apply knowledge in order to reduce the cost of producing, particularly the cost of pesticides, but still remain a good quality of product as well as emphasizing on the environment for sustainable citrus production in Thailand.