

Efficacy Testing of 'Soft' Pesticides for the Management of Cabbage Butterfly (*Pieris brassicae nepalensis* Doubleday) in Salyan, Nepal

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Abstract

A study on “Efficacy testing of ‘soft’ pesticides for the management of cabbage butterfly (*Pieris brassicae nepalensis* Doubleday) in Salyan, Nepal “ was conducted from April to July 2022 in Triveni rural municipality, Salyan to identify the effective soft pesticide for management of cabbage butterfly, *Pieris brassicae nepalensis* under Randomized Complete Block Design with three replications of seven treatments namely; Neemix @5ml/l, Cow urine solution@ 1:10, Botanical extract fermented with cow urine (BEFCU)@1:5, Emamectin benzoate @2gm/l, Spinosad @0.3ml/l, Cypermethrin@2ml/l and Control. Treatments were applied three times at 15 days intervals. Observations were made for the average larval population a day before, 3 days and 7 days after each spray whereas the percentage of leaves infested and average holes in infested leaves at 3 and 7 days after each spray. Likewise, cabbage head yield, diameter and height were recorded at harvesting. Similarly, population reduction over control (PROC) was calculated for the larval population in leaves. There was a significant effect of spraying soft pesticides on larval mortality and damage reduction. Two soft pesticides Spinosad (80.00%) and Cypermethrin (71.29%) gave a highly significant reduction of cabbage butterflies followed by Emamectin benzoate (71.25%) and Neemix (67.22%). Similarly, the lowest percentage of leaf damage was obtained with Spinosad and Cypermethrin followed by Emamectin benzoate. Average holes in infested leaves were found nonsignificant on all days of observation. The maximum head yield was obtained from Cypermethrin (23.44 mt/ha) followed by Spinosad. BEFCU and cow urine solution gave the least head yield and were nearly equally effective. Thus, Spinosad and Cypermethrin are superior soft pesticides for the management of cabbage butterflies compared to other treatments.

Keywords: soft pesticides, cabbage butterfly, *Pieris brassicae nepalensis*, Spinosad, Cypermethrin