

Evaluation of Newer Insecticide Molecules Against Major Insect Pests in Castor (*Ricinus communis* L.)

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ABSTRACT

Newer insecticide molecules were evaluated against major insect pests' viz. *Achaea janata* L., *Spodoptera litura* (F.), *Spilosoma obliqua*, *Conogethes punctiferalis* Guen. and *Empoasca flavescens* (F.) in a field experiment conducted at the Agricultural Research Station, Darsi, Prakasam district on red sandy loam soils for three years (2014–15, 2015-16 and 2016–17) during the *kharif* season. In this experiment popular hybrid PCH 111 was sown and ten treatments were evaluated viz. spinosad 45% SC, chlorfenapyr 10% SC, cyantraniliprole 10% OD, pyridalyl 10% EC, flubendiamide 20% WDG, betacyfluthrin 9% + imidacloprid 21% OD, bifenthrin 10% EC, acephate 50% + imidacloprid 1.8% SP, indoxacarb 15.8% EC and control. The treatments were imposed twice during first week of October and November when infestation crossed above economic threshold level. Cumulative mean of two sprays showed that spinosad and cyantraniliprole recorded significantly lower identical population of semilooper (0.28 larvae.plant⁻¹) compared to untreated control which recorded 2.23 larvae.plant⁻¹. Significant reduction in the incidence of *S. litura* larvae was recorded with cyantraniliprole (0.45 larvae.plant⁻¹) followed by chlorfenapyr (0.68 larvae.plant⁻¹), spinosad (0.78 larvae.plant⁻¹) and indoxacarb (0.82 larvae.plant⁻¹). Cyantraniliprole registered significantly low incidence of Bihar hairy caterpillar (0.16 larvae.plant⁻¹) followed by chlorfenapyr, flubendiamide (identical population of 0.24 larvae.plant⁻¹), betacyfluthrin + imidacloprid (0.25 larvae.plant⁻¹) and indoxacarb (0.26 larvae /plant) which were at par with each other. The population of leaf hopper was also fluctuated significantly and varied across different insecticide treatments. Significantly lower overall mean population levels were recorded with betacyfluthrin + imidacloprid (4.78/ 3 leaves) followed by acephate + imidachloprid (5.07/ 3 leaves) which was on par with bifenthrin (5.36/ 3 leaves). The test insecticides significantly altered capsule damage by capsule borer and over all mean damage was less with spinosad (10.1%) followed by indoxacarb (10.6%) and cyantraniliprole (10.7%) which were significantly superior over rest of the insecticides. Significantly high seed yield was recorded with spinosad (1004 kg.ha⁻¹) which was at par with cyantraniliprole (974 kg.ha⁻¹) followed by flubendiamide (858 kg.ha⁻¹). The treatments spinosad and flubendiamide apart from recording higher yield also gave higher Incremental Cost Benefit Ratio ICBR of 6.76 and 5.40.

Key words: *Castor, foliage feeders, capsule borer, leafhopper, insecticides, management*