

Evaluation of hexacopter UAV (ANGRAU PUSHPAK) spraying in management of sugarcane whitefly (*Aleurolobus barodensis* Maskell)

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ABSTRACT

The whitefly, *Aleurolobus barodensis* is recorded to be major constraint in sugarcane production especially in low-lying, water-logged areas and in semi dry alkaline soils. A field experiment with cane Co V 09-356 (2003 V 46) (Bharani) was conducted at operational research project (ORP) area, Penamakuru Village, Krishna District, Andhra Pradesh during *kharif* 2021 and 2022. In 2021, 100% recommended dose of Imidacloprid 17.8 SL @ 50 ml/acre by drone was highly effective in reducing the incidence of whitefly (94.41%) compared to untreated control and produced the highest single sugarcane yield (1.17 Kg Cane wt), percent sucrose (19.5%) and purity of juice (94.3%) as against untreated control (0.89 Kg, 20.67%, 93.7%). This treatment was statistically equivalent in reducing whitefly population (92.74%) with 75% recommended dosages of imidacloprid 35 ml/acre by drone and 100% dosage with manual spraying. Whereas, 50% dosage with imidacloprid 25 ml/acre showed least. In 2021, qualitative parameters in 75%, 50% and manual spraying i.e. single cane wt was about (1.16 Kg, 1.09 Kg, 1.09 Kg), percent sucrose (18.5%, 20.4%, 19.6%) and purity of juice (94.1%, 88.4%, 89.7%). In 2022, highest reduction of whitefly population, 92.93% with a cane yield (1.18 Kg), percent sucrose (20 %) and purity of juice (98.9%) with 100% recommended dosage of imidacloprid by drone as against untreated control (87.1%) and equivalent with 75%, 100% human back sprayer and lowest was in 50% recommended dosages. Moreover, the spray efficiency of UAV treatments was more compared to knapsack sprayer. The results showed the high potential use of UAV spray of insecticides for management of sugarcane whitefly was found in flight parameters of 1.0 m height and 4.5 m/s forward speed.

Key Words : *Bio Efficacy, Imidacloprid 17.8 SL, Phytotoxicity, Whitefly and UAV sprayer.*