عنوان مقاله:

Efficiency and economic viability of neem seed oil emulsion and cyper-diforce® insecticides in watermelon production within the Nigerian Southern Guinea Savanna zone

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خلاصه مقاله:

The efficiency of neem based insecticides have been assessed by many studies however, there is scanty information on the cost:benefit ratio of their use vis-a-viz synthetics, particularly, in watermelon production. In this study, thirty-six ۵ m long x ۸ m wide plots were arranged in Randomized Complete Block Design in ۴ replications of weekly spray of; ۰.۵% Cyper-diforce® (CD); ۱, ۳ and ۵% Neem Oil Emulsion (NOE); ۰.۲۵% CD + ۱, ۳ and ۵% NOE; ۱% soap solution and, Control (unsprayed plots). Arthropods were sampled on ۵ m length of row using Suction Sampler and Yellow Sticky Board. Severity of leaf damage and aphid colony size was also assessed. At harvest, marketable fruits were weighed and used to compute cost-benefit ratio. The prevalent pests were five species of leaf-beetles, Aphis gossypii Glover, Bemisia tabaci (Gennadius), Bactrocera cucurbitae (Coquillett) and Helicoverpa armigera (Hubner). The beneficials included; Apis mellifera L., Cardiochiles niger Szépligeti and Cheilomenes sulphurea (Olivier). The ۰.۵% CD was ineffective against Aphids but ۳ and ۵% NOE were. Overall, insecticide treatments reduced infestation by ۲.۹-۹۵.۳%. Though, combination of ۰.۲۵% CD with NOE treatments suppressed pest infestation relative to sole neem oil treatments, leaf injury and yields were statistically comparable. Sole NOE treatments were observed not to significantly suppress populations of beneficials when compared to ۰.۲۵% CD or their combinations. ۰.۲۵% CD + ۵% NOE consistently gave the highest yield/season (۳۹۱۹۲-۴۴۶۴۲ kgha-۱). Monetary benefits exceeded US۳۷۲۴ ha-۱. The insignificant differences in yield among the insecticide treatments showcased neem's potential in managing watermelon pests. The ineffectiveness of Cyper-diforce® against A. gossypii suggests resistance development.

کلمات کلیدی:

Arthropods, Cost-benefit analysis, Cyper-diforce®, Neem oil emulsion