SEASONAL INCIDENCE, VARIETAL SUSCEPTIBILITY AND BIOPESTICIDES BASED MANAGEMENT OF PEST COMPLEX OF SOYBEAN

A B S T R A C T

Key words: Soybean, pest complex, biopesticide, genotype, seasonal incidence, yield

Investigations were carried out on seasonal incidence, varietal susceptibility and biopesticides based management of pest complex of soybean [Glycine max (L.) Merrill.] at Instructional Farm, College of Agriculture, Junagadh Agricultural University, Junagadh (Gujarat) during the kharif -2013.

Studies on seasonal incidence of pest complex of soybean revealed that the whitefly (Bemisia tabaci Gennadius) commenced from third week of September (1.9 whiteflies per three leaves per plant) and peak level of 5.6 whiteflies per three leaves per plant was observed during second week of October. None of the weather parameter was found significantly correlated (r = 0.5324 at 5 per cent) with population of whitefly but the significant negative correlation between whitefly population and evaporation rate (r = 0.6614 at 1 per cent) on soybean during kharif - 2013. The infestation of jassid (Empoasca kerri pruthi) initiated from the second week of September (0.16 jassid per three leaves per plant) and peak level (3.78 jassid per three leaves per plant) in second week of October was observed. None of the weather parameters was positive significantly correlated with the jassid population.

Incidence of aphid, (Aphis glycine Koch) commenced from third week of September (0.01 aphid index) and peak level (3.57 aphid index) was observed during second week of October. None of the weather parameter was found significantly correlated (r = 0.5324 at 5 per cent) with population of aphid but significant negative correlation between aphid population and evaporation rate (r = 0.5324 at 5 per cent level). Incidence of tobacco leaf eating caterpillar (Spodoptera litura Fabricius) commenced from third week of September. The first peak level of 5.7 larvae per plant during second week of October and second peak level of 3.1 larvae per plant was observed during second week of November. All the weather parameters showed non-significant correlation with the population of S. litura during kharif-2013.
Abstract

Studies on susceptibility of eight genotypes/varieties of soybean against pest complex revealed that the genotype GS-3 recorded lowest population of whitefly (2.75 whiteflies per three leaves per plant) and aphid (2.13 aphid index per plant). The genotype J-659 recorded minimum population of jassid (2.91 jassid per three leaves per plant) and S. litura (2.63 larvae per plant).

The results of two applications of different treatments against pest complex of soybean revealed that the treatment with monocrotophos 0.04 per cent and NSKE 5 per cent were the most effective for the control of whitefly. Among the biopesticides and combination of treatments, Bb @ 1.0 Kg/ha + monocrotophos 0.02 per cent was most effective against whitefly followed by V. lecanii @ 1.0 Kg/ha + monocrotophos 0.02 per cent. The treatment with monocrotophos 0.04 per cent and NSKE 5 per cent were the most effective treatments against jassid on soybean. Among the biopesticides and combination of treatments, V. lecanii @ 1.0 Kg/ha + monocrotophos 0.02 per cent was most effective against jassid followed by Bb @ 1.0 Kg/ha + monocrotophos 0.02 per cent against jassid on soybean.

Monocrotophos 0.04 per cent was the most effective treatment against aphid on soybean. Among the biopesticides and combination of treatment used against aphid, V. lecanii @ 1.0 Kg/ha + monocrotophos @ 0.02 per cent was most effective followed by Bb @ 1.0 Kg/ha + monocrotophos @ 0.02 per cent and V. lecanii @ 1.0 Kg/ha + NSKE 2.5 per cent against aphid on soybean during kharif-2013. The treatment with monocrotophos 0.04 per cent was the most effective treatments against tobacco leaf eating caterpillar on soybean. Among the biopesticides and combination of treatments, Bb @ 1.0 Kg/ha + monocrotophos 0.02 per cent was most effective against tobacco leaf eating caterpillar followed by Bb @ 1.0 Kg/ha + NSKE 2.5 per cent on soybean during kharif-2013.

Considering the yield of soybean, the spraying with monocrotophos 0.04 per cent gave the maximum grain yield (1934 kg/ha), followed by NSKE 5 per cent (1893 kg/ha). Among the biopesticides and combination of treatments Bb @ 1.0 kg/ha + monocrotophos @ 0.02 % gave higher yield (1609 kg/ha). The treatments viz., V. lecanii @ 1.0 kg/ha + monocrotophos @ 0.02 %, Bb @ 1.0 kg/ha + NSKE @ 2.5 %, V. lecanii @ 1.0 kg/ha + NSKE @ 2.5 %, Bt @ 1.0 kg/ha + monocrotophos @ 0.02 % and Bt @ 1.0 kg/ha + NSKE @ 2.5 % were the next effective treatments. The rest of the treatments also gave the higher yield as compared to control.