BIOLOGY, POPULATION DYNAMICS, EVALUATION OF DIRECT AND INDIRECT EFFECTS OF BIOTIC AND ABIOTIC FACTORS ON THRIPS POPULATION AND CHEMICAL CONTROL OF GREENGRAM THRIPS

*Megalurothrips distalis* (Karny)

**ABSTRACT**

*Key words: *Megalurothrips distalis* (Karny), greengram, biology, population, direct - indirect effect and chemical control.

An investigation was carried out on “Biology, population dynamics, evaluation of direct and indirect effects of biotic and abiotic factors on thrips population and chemical control of Greengram thrips *Megalurothrips distalis* (Karny)” at Department of Entomology, College of Agriculture, JAU, Junagadh during Kharif 2016.

Study on biology of thrips, *M. distalis* on greengram revealed that the life stages of *M. distalis* consist of egg, larva, pupa and adult (male and female). The average incubation period of egg was 5.20 ± 0.98 days and the percentage of hatchability of eggs was 64.84 ± 15.08. *M. distalis* passed through two days larval instars. The average duration of first instar was 2.44 ± 0.48 and second larval instars 3.48 ± 0.48, the total larval period was 5.96 ± 0.70 days. The pre pupal duration was 1.52 ± 0.49 days and the pupal period was 2.56 ± 0.48 days. The pre-oviposition, oviposition and post-oviposition periods were 1.50 ± 0.50, 2.20 ± 0.60 and 0.30 ± 0.46 days, respectively. Longevity of adult female and male was 20.28 ± 1.82 and 18.84 ± 1.54 days, respectively. The total life span of female and male was 36.92 ± 2.24 and 32.68 ± 3.42 days, respectively.

Studied on population dynamics of thrips on greengram revealed that the pest commencement from the third week of July (vegetative growth stage) and remained active throughout fourth week of September (up to crop maturity). The pest population commenced on greengram during 31st standard week with 0.40 thrips per tri-foliate leaf. Further it was found that after commencement the pest population increased fast. The population increased very fast and reached on a peak during standard week 37th with 5.21 thrips per tri-foliate leaf. After reaching the peak the pest population decline continued during each week. The pest infestation was initiated during the vegetative phase of cowpea i.e. 3rd week after sowing. The population of the thrips *M. distalis* multiplied very high 2.13 to 5.21 larval per plant during the flowering, pod formation and pod development stage of greengram i.e. 5, 6, 7, 8 and 9
week after sowing. The pest population was decline during pod maturity in the greengram.

The correlation coefficient of population of thrips, *M. distalis* on greengram at Junagadh was significant positive correlation with mean bright sunshine hours (r = 0.638*) and significant negative correlation with evening relative humidity (r = -0.579*), respectively. The direct effect on thrips population was noticed negatively very high (-4.0520) and (-1.5748) and positively very high (5.9051) through Evening relative humidity, mean bright sunshine hours and spider.

Among the nine different pesticides evaluated against *M. distalis* infesting greengram treatments of imidacloprid 0.002 per cent, profenophose 0.05 per cent and fipronil 0.01 percent. effective against thrips were considering the yield of greengram, the treatment of imidacloprid 0.002 per cent registered the highest yield 1560 kg/ha and found statistically at par with profenophose 0.05 per cent (1320 kg/ha) and fipronil 0.01 per cent (1296 kg/ha). Three treatment also recorded highest per cent increase in yield over control i.e 85.33, 76.00 and 72.80 per cent, respectively.

Looking to the economics of these insecticide, imidacloprid 0.002 per cent gave highest cost benefit ratio (49.23) followed by profenophose (48.00), acetamiprid 0.07 per cent (32.06), fipronil 0.01 per cent (27.3), dimethoate 0.03 per cent (19.0), thiamethoxam 0.0125 per cent (12.57), cypermethrin 0.016 per cent (12.22), buprofezin 0.05 per cent (9.0) and spinosad 0.018 per cent (5.2).

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