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COMPARATIVE INCIDENCE OF *SPILOSOMA OBLIQUA WALKER (LEPIDOPTERA: EREBIDAE)* ON SUNFLOWER CULTIVARS

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ABSTRACT

Larval population of Bihar hairy caterpillar / 50 plants varied from 5.60 – 12.80 among different cultivars. ANYOA test showed that the larval population differed with the cultivar significantly. GK 2002 and SSH 6163 registered the minimum population (5.60) larvae per 50 plant but was not significantly different from that of CSF 292, PG 1080, SH 3322, sunshine 399 with larval population varing from 6.20 – 7.20 cultivar MSFH 17 supported the maximum larval population (12.80) was at par with MSFH 8 then MSFH 36 morden and sunshine 399 the remaining cultivars were intermediate in response to this respect.

KEYWORDS: Bihar hairy caterpillar, Sunflower, Cultivars.

INTRODUCTION

Intensive surveys and various regular observations at weekly intervals from date of sowing to harvest in zaid, kharif and rabi sunflower crops each year during a period of three years from 2001-2003 have projected a clear picture of pest spectrum at the place of the present investigation. According to which, the insect pest complex at Bharwari, Kaushambi comprises mostly sucking and defoliator species. It consists of 24 insects species such as green grasshopper, Atractomorpha crenulata, surface grasshopper, Chrotogonus oxypterus, white ant, Oiontotermes obesus, mustard aphid, Lipaphis erysimi, cotton aphid, Aphis gossypii, cotton bug, Dysdercus koenigii, lacewing bug, Cadmilos retiarius, painted bug, Bagrada cruciferum, green bug, Nezara viridula, cow bug, Leptocentrus aetus, jassid, Amrasca biguttla biguttula, whitefly, Bimisia tabaci, thrips, Scirtenthrips dorsalis, flower thrips, Caliothrips indicus, Bihar hairy caterpillar, Spilosoma (=Diacrisia) oblique, cabbage semilooper, Thysanoplusia ni (= Plusia ni), pea semilooper, Spodoptera litura, gram pod/ capitulum borer, Helicoverpa armigera (=Heliothis armigera), tussock moth, Euproctis fraternal, ground beetle, Gonocephalum sp., sp., ash weevil, Myllocerus discolor and leaf miner, Chromatomyia horticola. Most of these species have already been reported earlier to infest the sunflower in Delhi, Karnataka, Maharashtra, Tamil Nadu, Andhra Pradesh and other place (Lewin *et al.*, 1973, Rajamohan *et al.,* 1974a *etc.*

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MATERIAL AND METHOD

Experimental field at research farm of Tulsi Agroenviron Research Institute was ploughed 20-25 cm deep by mould board plough after flooding with water in summer but in other seasons, pre-sowing water supply to the field depended upon moisture content soil. The field was prepared for sowing by two or three ploughings followed by planking. Seeds of cultivars modern, soaked in water over night, were sown on 19th February, 7th July and 31st October during zaid, kharif and rabi crop seasons every year throughout the tenure of the investigation. Plant to plant was 30 cm, whereas row to row distance was 45 cm. All the recommended agronomical practices with regard to fertilizer doses, irrigation and other intercultural operations were followed, Nitrogen, Phosphorus and Potassium as synthetic fertilizers were applied to the soil @ 60 kg, 40kg and 20 kg/ha. Half dose of nitrogen and full dose of P and K were applied to the soil at time of the first ploughing. The remaining quantity of N was applied when plants were 30 days old. The above mentioned activities were executed in two plots, each measuring 20x5 cm. Other cultivars were also sown as described above.

RESULT AND DISCUSSION

During each of 2001, 2002 and 2003 *Spilosoma obliqua walker* (Bihar hairy caterpillar) was more active in zaid crop season as compared to Kharif and rabi crop season. The beginning of activity and population trend were almost identical in kharif and rabi crop each year. The population showed fluctuation; in the beginning, it increased for a short while and thereafter, went on declining. The population of Bihar hairy caterpillar during three crop season from 2001-2003 varied from 2.4-4 caterpillar/plant. During 2001 the population built up of above mentioned insect was found to be correlated to maximum and minimum temperature (r= -0.949 and r= -0.856 respectively) indirectly and directly to relative maximum and minimum humidity (r= +0.812 and r= +0.93) respectively). The Bihar hairy caterpillar was observed to be voracious defoliator. Its infestation varied from 5.8 – 11.2 percent.). Table 1. The similar result was also noticed by Aydin H and Gurkan M.O. (2006), ABD El–MAGEED A.E.M. *et. al.* (2008), Corbel V. Stankiewicz *et. al.* (2006), EL-ASWAD A.E. (2007) Efficiency of certain insecticides and insect growth regulators alone or in mixture with chloypyrifos for the integrated control of the Egyptian cotton leafworm, Khan, H.A. *et. al.* (2013), Li SQ *et. al.* (2005), Lewin, H.D., *et.al.* (1973), Mathiyazhagan, N. & Natarajan, D. (2013) Phytoremediation efficiency of edible and economical crops on waste dumps of bauxite mines, Salem district, Tamil Nadu, Nassar, M.I., *et.al.* (2018), Parugrug ML and Roxas AC (2008), Rozpara E *et. al.* (2016), Rajamohan, *et. al.* (1974a), Swelm E.S. and Sayed M.A. (2006), Sarwar M and Salman M (2015), Senthil-Nathan S (2015), Shahab-Ghayoor H and Saeidi K (2015), Szolyga B *et. al.* (2014) Chemical composition and insecticidal activity of *Thuja occidentalis* and *Tanacetum vulgare* essential oils against larvae of the lesser mealworm, *Alphitobius diaperinus*, Tabari MA *et. al.* (2015) and Tak JH *et. al.* (2016).

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Table 1.Comparative incidence of *Spilosoma obliqua walker* on sunflower cultivars during Zaid, 2004

Cultivars	Mean larval population/50 plants*
PHS 4	10.20 (3.03)
CSF 292	6.60 (2.37)**
MSFH 31	9.20 (2.86)
MSFH 34	11.4 (3.23)
MSFH 17	12.80 (3.44)
MSFH 8	12.60 (3.41)
MSFH 36	11.60 (3.19)
PG 1080	6.40 (2.32)
SH 3322	6.20 (2.28)
GK 2002	5.60 (2.14)
Morden	10.20 (3.03)
Jwalamukhi	7.20 (2.49)
SSH 6163	5.60 (2.14)
Sunshine 399	6.20 (2.28)
SH 9986	11.60 (3.26)
PAC 3776	8.80 (2.79)
PAC 8699	9.20 (2.80)
CD	0.44***

Fig. In Parentheses and Transformed value.
*Based on 5 observations
**Figures in brackets are √n+1 transformations
***Significant

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