

COMPARATIVE INCIDENCE OF *PLUSIA ORICHALACEA FAB* (*PEA SEMILOOPER*) ON SUNFLOWER CULTIVARS

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ABSTRACT

Cultivar GK 2002 registered minimum population (4.91) larvae/ 50 plant but it was not significantly different from that of PG 1080 Morden, SSH 6163, sunshine 399, SH 9986, CSF 292 and SH 3322 with larval population varying from 5.56 to 7.39. The maximum larva population was supported by each of PHS 4, MSFH 17, MSFH 8 and PAC 8699 (11.20 larval/ 50 plants) and the remaining cultivars were intermediate.

KEYWORDS: Pea semilooper, Sunflower, Cultivars.

INTRODUCTION

Hemiptera was the most predominant group in the sunflower crop; it was represented by 10 species. Among which the dusky cotton bug, whitefly and Jassid were very conspicuous and regular pests. However, the former attack the sunflower only during the zaid crop season. The order Lepidoptera was next two Hemiptera in number of species attacking the sunflower; 5 lepidopterans such as *H. armigera*, *D. oblique*, *P. orichalcea*, *T. ni*, *S. litura* and *E. fraternal* attacked the sunflower. The first 4 Lepidopterans were regular pest but the last one was rare and it was found only once in three years period during the rabi crop season. Order diptra was represented in sunflower only one species. Two grasshoppers such as *A. crenulata* and *C. oxypteros* (Orthoptera) attacked the sunflower crop as regular pest but the latter species was found near maturity of the crop. In sunflower crop, Order

Thysanoptera was represented by two species i.e. *S. dorsalis* and *C. indicus* and these were regular pest. White ant attacked sunflower crop every year during rabi and summer but the percentage of infestation of this pest always remained below 2 percent. The sunflower crop at Bharwari, Kaushambi was attacked by two coliopterans—*Gonocephalum* sp. and *Myllocerus discolor*. The former species fed on sunflower only during night were as the latter species remained active on sunflower during day time. These two species were regular pests but they appeared to cause negligible damage. The pests present on sunflower at Bharwari belonged to two categories-defoliator pests and sucking pests. In sunflower crop sucking pests were represented by 13 species and defoliators by 10 species. Besides these one pest was under ground and it feed on root on sunflower plant.

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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

Cultivar GK 2002 registered minimum population (4.91) larvae/ 50 plant but it was not significantly different from that of PG 1080

Morden, SSH 6163, sunshine 399, SH 9986, CSF 292 and SH 3322 with larval population varying from 5.56 to 7.39. The maximum larva population was supported by each of PHS 4, MSFH 17, MSFH 8 and PAC 8699 (11.20 larval/ 50 plants) and the remaining cultivars were intermediate. (Table-1). The similar result was found Aydin H and Gurkan M.O. (2006) The efficacy of spinosad on different strains of *Spodoptera littoralis* (Boisduval) (Lepidoptera; Noctuidae), ABD EI-MAGEED *et. al.* (2008), Corbel V. *et. al.* (2003), Corbel *et. al.* (2006) Synergism between insecticides permethrin and propoxur occurs through activation of presynaptic muscarinic negative feedback of acetylcholine release in the insect central nervous system, EL-ASWAD A.E. (2007), Flint, H.M.; (1978), Khan, H.A., *et. al.* (2013) Insecticide mixtures could enhance the toxicity of insecticides in a resistant dairy population of *Musca domestica* L., Li SQ, *et. al.* (2005), Mathiyazhagan, N., & Natarajan, D. (2013), Martin T. *et. al.* (2003), Mushtaq A. (2004), Nassar, M.I., *et. al.* (2018), Parugrug ML and Roxas AC (2008), Rozpara E (2016), Sivaraman, G., *et. al.* (2017) Biological effects of active fraction isolated from *Hydnocarpus pentandra* (Bunch.-Ham.) Oken seeds against *Helicoverpa armigera* (Hub.) (Lepidoptera: Nctuidae), 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), Tabari MA, *et. al.* (2015) and Tak JH, *et. al.* (2016) also recorded.

Table 1. Comparative incidence of *Plusia orichalacea Fab* (pea semilooper) on sunflower cultivars during Zaid, 2004

Cultivars	Mean larval population/50 plants*
PHS 4	11.20 (3.49)**
CSF 292	7.39 (2.90)
MSFH 31	8.34 (3.06)
MSFH 34	8.34 (3.06)
MSFH 17	11.20 (3.49)
MSFH 8	11.20 (3.49)
MSFH 36	7.39 (2.90)
PG 1080	5.56 (2.56)
SH 3322	7.39 (2.90)
GK 2002	4.91 (2.43)
Morden	5.56 (2.56)
Jwalamukhi	7.39 (2.90)
SSH 6163	5.56 (2.56)
Sunshine 399	5.56 (2.56)
SH 9986	5.80 (2.61)
PAC 3776	8.34 (3.06)
PAC 8699	11.20 (11.20)
CD	0.38***

Fig. In Parentheses and Transformed value.

* Based on 5 observations

** Figures in brackets are $\sqrt{n+1}$ transformations

*** Significant

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