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Population of Plume Moth *Exelastis atomosa (Walshingham)* *on Some Varieties of Pigeonpea* (*Cajanus cajan* L. Millsp.)

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Abstract

The investigations on comparative preference of some newer pigeonpea varieties to the infestation of plume moth (*Exelastis atomosa*) was carried out during the *kharif* season of 2007-08 and 2008-09. The larval population of plume moth was recorded to be maximum in MAL-13 and MAL-20 (0.07 larvae per plant) in each genotype followed by MAL-27 (0.06 larvae/plant) in 2007-08. In 2008-09 the maximum population was recorded in NDA-5-25 (0.16 larvae/plant) and lowest population was recorded in MAL-27 (0.03 larvae/plant). The larval population of plume moth was highest in standard week 12 i.e. 0.13 larva/plant followed by standard week 11 (0.11 larva/plant) while in standard weeks 4—8 there was no infestation in 2007-08. The maximum larval population was recorded in week standard 12 (0.16 larvae/plant) and minimum in standard weeks 4 and 11 (0.03 larvae/plant). The population was recorded to be minimum in MAL-13 (0.03 larva/plant) among all the genotypes in 2008-09.
Key words : Pigeonpea, Plume moth, *Exelastis atomosa*, Population.

Pigeonpea (*Cajanus cajan* (L.) Millsp.) is a major grain legume crop of the semiarid tropics. It is grown extensively in India and other developing countries of Asia, Africa and Latin America. The damage caused by insect pests is one of major constraints of low productivity of pigeonpea. Sachan and Lal (I) have reported 250 species of insects worldwide belonging to eight orders and 61 families which infest the crop and few of them causes serious yield loss. Most of these insect species are sporadic in their distribution and therefore may not all be regarded as pests. The economically important insect pests attack pigeonpea at the reproductive phase and in storage, when they damage flower buds, flowers, pods, and seeds, Insect pests feeding on flowers, pods, and seeds are the most important biotic eonstraint affecting pigeonpea (*Cajanus cajan* L. Millsp.) yield. Among the various pod borers attacking pigeonpea, the plume moth, *Exelastis atomosa* (Walshingham) is one of the most destructive and major constraint in the successful cultivation of pigeonpea particularly in eastern UP (2). As the pest damage by boring various reproductive parts, timely control of this pod borer is more important for realizing better yield. Therefore, the information pertaining to its population on some important pigeonpea varieties may be of significant importance and therefore this study was undertaken.

Methods

The relative preference on the basis of larval population on six long duration varieties of pigeonpea against the infestation of plume moth (*Exelastis atomosa*) was studied during 2007-08 and 2008-09 cropping season at the Research Farm of the Institute of Agricultural Sciences, Banaras Hindu University, Varanasi. The six varieties of long duration

Table 1. Plume moth (*Exelastis atomosa*) population on long duration pigeonpea. Figures in parentheses are transformed values = $\sqrt{x} + 0.5$.

Varieties	Population/plant 2007-2008	2008-2009	Average
NDA-5-25	0.00 (0.71)	0.16 (0.81)	0.08 (0.76)
PDA 85-5E	0.01 (0.71)	0.04 (0.73)	0.03 (0.72)
MAL-27	0.06 (0.75)	0.09 (0.77)	0.08 (0.76)
KAWR 92-2	0.02 (0.72)	0.07 (0.75)	0.05 (0.73)
MAL-13	0.07 (0.75)	0.03 (0.73)	0.05 (0.74)
MAL-20	0.07 (0.75)	0.05 (0.74)	0.06 (0.75)
Average	0.04 (0.73)	0.07 (0.75)	0.06 (0.74)
CD (*P*=0.05)	0.03	0.04	0.03

Table 2. Plume moth (*Exelastis atomosa*) population on long duration pigeonpea. Figures in parentheses are transformed values = $\sqrt{x + 0.5}$.

Periods	Population/plant 2007-2008	2008-2009	Average
24th Jan	0.00 (0.71)	0.03 (0.73)	0.02 (0.72)
31st Jan	0.00 (0.71)	0.08 (0.76)	0.04 (0.74)
7th Feb	0.00 (0.71)	0.04 (0.74)	0.02 (0.73)
14th Feb	0.00 (0.71)	0.11 (0.78)	0.06 (0.75)
21st Feb	0.00 (0.71)	0.06 (0.74)	0.03 (0.73)
28th Feb	0.08 (0.76)	0.04 (0.74)	0.06 (0.75)
6th March	0.06 (0.75)	0.09 (0.76)	0.08 (0.76)
13th March	0.11 (0.78)	0.03 (0.73)	0.07 (0.76)
20th March	0.13 (0.79)	0.16 (0.81)	0.15 (0.80)
Average	0.04 (0.73)	0.07 (0.75)	0.06 (0.74)
CD (*P*=0.05)	0.03	0.03	0.03

pigeonpea i.e. NDA 5-25, PDA 85-5E, MAL-27, KAWR 92-2, MAL-13 and MAL-20 were grown having three replications following Randomized Block Design. The plot size was 4 m × 3.75 m (15 m^2) and the seeds were sown maintaining row to row and plant to plant distance of 75 cm and 10 cm, respectively. Five pigeonpea plants in each plot were observed and the population per plant were recorded for statistical analysis. The data recorded were transformed as square root transformed ($\sqrt{x + 0.5}$) values and subjected to statistical analysis as per the Factorial Randomized Block Design procedure.

Results and Discussion

The maximum population of Plume moth was recorded in the varieties MAL-13 and MAL-20 (0.07 larvae/plant) followed by MAL-27 (0.06 larvae/plant). The lowest population was recorded in variety PDA85-5E (0.01 larvae/plant) and no population was recorded in variety NDA-5-25 in the year 2007-08. Whereas in 2008-09 the maximum population was recorded in the variety NDA-5-25 (0.16 larvae/plant) followed by MAL-27 (0.09 larvae/plant). The lowest population was recorded in variety MAL-13 (0.03 larvae/plant). In average of both the years the maximum population was recorded in varieties NDA-5-25 and MAL-27 (0.08 larvae/plant). The lowest population was recorded in variety PDA-85-5E (0.03 larvae/plant) (Table 1). The results are similar to as in earlier findings (3).

The incidence of plume moth was not observed to standard weeks 4—8. The population was recorded from standard week 9 and was found maximum population in standard week 12. The minimum population was recorded in standard week 10 in 2007-08. Whereas in 2008-09 the population was observed from standard week 4 and found to be maximum population in standard week 12. The minimum population was recorded in standard weeks 4 and 11 (Table 2). In average of both the years the maximum population was recorded in standard week 12 whereas the minimum population was recorded in standard weeks 4 and 6 (Table 2). The results are similar to earlier findings (2, 4).

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