

Research Paper :

Population dynamics of gram pod borer, *Helicoverpa armigera* (Hubner)



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SUMMARY

The experiment was conducted for monitoring the population dynamics of gram pod borer, *Helicoverpa armigera* (Hubner) by the use of sex pheromone (Helilure) at Karmveer Kakasaheb Wagh College of Agriculture, Nashik (M.S.) during Rabi season 2007-08. Total five pheromone traps were installed in the gram field comprising the varieties viz., Vishal, Virat and Vihar. Observations were recorded daily in morning regarding the number of moths of *H. armigera* attracted in each of the traps from December 2007 to March 2008. The data were compiled on weekly basis. The data indicated that, the catches of moths were increasing irrespective of varieties from 4th week of December, 2007 (9 moths) when maximum and minimum temperatures were 29.0°C and 13.9°C with morning and evening relative humidity 75.1 per cent and 60.6 per cent, respectively and observed peak at 1st week of February (151 moths) when the maximum and minimum temperatures were 23.9°C and 6.5°C with morning and evening relative humidity of 62.6 per cent and 30.1 per cent, respectively. The pest gradually decreased and reached at rock bottom level of 2 moths during 3rd week of March, 2008, when maximum and minimum temperatures were of 36.3°C and 20.8°C with morning and evening relative humidity of 57.8 per cent and 24.4 per cent respectively. The moth emergence was found to be negatively and significantly correlated with the maximum temperature ($r = -0.62$) and minimum temperature ($r = -0.75$) while there was significant relationship between relative humidity and pest incidence.

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Seasonal

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Climatic factors

India is the largest producer of chickpea (*Cicer arietinum* L.) with 67 per cent of the global production and occupying nearly 31 per cent of pulse area in the country contributing over 37 per cent to the national pulse production (Ali and Kumar, 2003). *Helicoverpa armigera* (Hubner) (Lepidoptera: Noctuidae), is well known as cotton bollworm, gram caterpillar, pod borer or American bollworm. It is highly polyphagous pest with broad spectrum of host families including important agricultural crops such as cotton, maize, chickpea, pigeonpea, sorghum, sunflower, soybean, groundnut etc. (Fitt, 1989). In chickpea, *Helicoverpa armigera* caused losses ranging from 10 to 80 per cent in terms of pod damage (Yelshetty and Sidde Gowda, 1998). The study of population dynamics of the pest is important for the effective management of the pest population.

The present studies were therefore undertaken to know the seasonal occurrence of *Helicoverpa armigera* in gram by the use of sex pheromone traps.

Minimum temperature influenced on the trap catches positively during winter. Relative humidity influenced negatively during winter season but positively influenced during rainy season in *S. litura* (Mahalingam *et al.*, 2003). Influence of weather parameters on *Spodoptera liturai* catches in pheromone trap was studied by Gedia *et al.* (2007). Monitoring of cotton bollworm through pheromone traps and impact of abiotic factors on trap catches were reported by Prasad *et al.* (2008). They found that minimum temperature and rainfall were found to exert highly significant negative influence on pheromone trap for catches of *H. armigera*.

So, the present study was undertaken to

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