

Research Paper :

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

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SUMMARY

The results of the investigation on population dynamics of chickpea pod borer, *Helicoverpa armigera* (Hubner) on chickpea revealed that the pest appeared from 2nd week of December and attained a peak of 3.12 larvae per plant during 2nd week of January. The pest was active during the last week of December to 3rd week of January. Later on, the pest population declined gradually towards the maturity of the crop. Correlation of *H. armigera* with different weather parameters indicated that maximum temperature exhibited highly significant negative correlation ($r = -0.7514$) with larval population of *H. armigera*, whereas, minimum temperature ($r = -0.5771$) and mean temperature ($r = -0.6836$) exhibited significant negative correlation. However, the pest population showed highly significant positive correlation with morning relative humidity ($r = 0.7098$), evening relative humidity ($r = 0.7293$) and mean relative humidity ($r = 0.8063$).

Key words : Pod borer, *Helicoverpa armigera*, Chickpea, Population dynamic

Among various pulses, chickpea is one of the important leguminous crops. In Gujarat, area under chickpea was 1.97 lakh hectares with total production of 1.872 lakh tonnes and productivity of 950 kg/ha (Anonymous, 2008). Among the various factors responsible for low yield of chickpea in India, *H. armigera* is most important which cause very heavy losses in yield. In India, losses caused by *H. armigera* on chickpea and pigeon pea field exceeds Rs. 12,000/- million per year (Anonymous, 1996). It has been reported 3.6-72.8% pod damage in chickpea (Patnaik *et al.*, 1991). Excessive use of the chemicals not only causes the economical restrain on farmers but also produces the harmful side effects on the environment as well as human being. The best way to overcome this situation is to destroy the pest at its initial stage of the life cycle. This is possible if timely prediction of the occurrence of the pest can be made. Hence, an attempt has been made to investigate the sensitivity of the incidence of pod borer, *H. armigera* infesting chickpea to the different meteorological parameters.

MATERIALS AND METHODS

The experiment on the population dynamics of *H. armigera* on chickpea was carried out on variety GG-1 during Rabi- 2008-

09 at Instructional Farm, College of Agriculture, Junagadh Agriculture University, Junagadh. The crop was kept unsprayed through out the season. The crop area of 180 sq.m. was divided into 10 quadrates (5.0 m x 3.6 m) and the larval population was recorded on five randomly selected plants from each quadrate at weekly interval on standard weather week basis. With a view to study the impact of different weather parameters on pest incidence, a simple correlation between population of the pest and weather parameters was worked out. Weekly meteorological data were obtained from Meteorological Observatory, Junagadh Agriculture University, Junagadh recorded during present experimental period.

RESULTS AND DISCUSSION

The data summarized in Table I revealed that the pest population of *H. armigera* ranged from 0.68 to 3.12 larvae per plant during the season. The pest commenced in 2nd week of December with 0.68 larvae per plant, which gradually increased and attained a peak (3.12 larvae per plant) during 2nd week of January (9th week after sowing). Further, the pest population gradually declined (0.08 larvae per plant) towards the maturity of the crop at 14th week after sowing (3rd week of February). It indicated that the pest was active during

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