

## **Evaluation of neem and bio-pesticides for management of *Helicoverpa armigera* (Hub.) in chickpea and their economics**

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**ABSTRACT :** Two field trials were conducted during *rabi* 2011 and 2012 to evaluate botanical and bio-pesticides against *Helicoverpa armigera*. During 2011 and 2012, field trials at 10 days after spraying endosulfan 35 EC @0.07% sprayed plots 3.2 and 3.4 larva observed, respectively as against 7.0 and 6.2 in untreated control. NSKE @5% with 3.5 and 3.6 larva was the next best treatments and it was closely followed by *Bt* @ 1 kg. Chickpea yield was significantly higher in endosulfan 35 EC @0.07% (26.52 and 25.19 q/ha), followed by NSKE @ 5% (24.07 and 22.65 Q/ha) and *Bt*@1 kg (23.30 and 21.86 q/ha). Highest incremental cost benefit ratio (1:39.7 and 32.85) was attained by Endosulfan 35 EC @0.07%, which was followed by *Ha* NPV @450 LE (1:31.82 and 22.22).

**Key Words :** Neem, bio-pesticides, control, *Cicer arietinum*, *Helicoverpa armigera*.