

Yield response of cowpea, *Vigna unguiculata* L. (Walp), to infestation of *Aspavia armigera* F. (Hem., Pentatomidae)

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Abstract

Yield-related responses of cowpea plants to artificial infestation of *Aspavia armigera*, at the onset of podding, at different densities, 0, 1, 2, 4, 8, 16 and 32 pairs per cage were studied on cowpea in caged pots and field plots. With increasing insect density there was a corresponding significant increase ($P < 0.05$) in pod and seed damage, and reduction in pod length, numbers of pods per plant and seeds per pod, seed weight and total yield. Pod production was significantly higher ($P < 0.05$) in infested plants than in the control; at 1- and 16-pair levels, pod production increased by 75% and 81% over the uninfested control in the pot and field experiments respectively. Then again, with increase in insect density there was a progressive high-magnitude increase in pod abortion reaching 252.6% and 200% at the 32-pair level on potted and field cowpea, respectively, resulting in drastic reductions in the number of harvestable pods. Cowpea compensation mechanism was lost completely as insect population increased. The lowest density of *A. armigera* at which significant reduction ($P < 0.05$) occurred in total seed yield compared with the control was one pair. The relationship between insect density and pod damage, and yield was best described by a quadratic + linear fit, while that between insect density and seed damage was best fit as polynomial with very high significant r -values. Chi-squared analysis showed that the models derived from pot and field data were similar.

Keywords:

Aspavia armigera; cowpea; damage; yield losses