

Estimation of avoidable loss in chickpea (*Cicer arietinum*) due to gram-pod borer (*Heliothis armigera*) in Rajasthan

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The loss caused by gram-pod borer [*Heliothis armigera* (Hübner)] in chickpea (*Cicer arietinum* L.) has been estimated by many workers in India, but most of the data are from research-station farms, which are of not much use in developing strategy for insect-pest management suitable at farmer's level due to different ecological conditions. Hence an attempt was made to estimate the avoidable loss in chickpea caused by *H. armigera* in a farmer's field.

A local variety ('C 235') was sown in 12 pairs of pesticide-protected and un-protected plots on a farmer's field at village Chikalvas (approximately 12 km away from Udaipur) during post-rainy season (October-March) of 1984 and 1985. Each plot had 4 rows of 4 m each, with row-to-row distance of 40 cm and plant-to-plant distance of 10 cm. The protected plots were sprayed once during flowering stage and twice during podding stage at intervals of 15 days with endosulfan @ 0.7 kg ai/ha with the help of a hand-operated knapsack sprayer. The pod damage (%) at maturity (by taking a random sample of 10 plants from each plot) and grain yield were recorded in all the plots. The avoidable loss (%) was calculated

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Table 1 Avoidable loss due to gram-pod borer on chickpea in farmer's field at Chikalvas in 1984 and 1985

	1984						1985					
	Pod damage (%)		Grain yield (kg/ha)		Loss		Pod damage (%)		Grain yield (kg/ha)		Loss	
	Protected	Un-protected	Protected	Un-protected	Actual	(%)	Protected	Un-protected	Protected	Un-protected	Actual	(%)
	1.2	6.8	679	568	111	16.0	1.8	7.3	687	562	125	18.2
	0.8	5.7	718	591	127	17.7	1.3	6.8	729	608	121	16.6
	0.5	6.6	627	524	103	16.4	0.8	6.6	663	545	118	17.8
	1.0	5.2	726	611	115	15.8	1.6	8.1	613	508	105	17.1
	1.6	6.3	709	603	106	15.0	0.6	5.9	719	593	126	17.5
	0.9	5.9	683	554	129	18.9	0.5	6.3	674	537	137	20.3
	0.3	4.8	758	643	115	15.2	1.1	7.6	604	486	118	19.5
	0.6	5.4	748	623	125	16.7	0.3	5.4	746	605	141	18.9
	0.5	4.6	847	703	144	17.0	1.0	6.2	769	621	148	19.2
	1.1	7.1	604	494	110	18.2	1.4	5.8	812	675	137	16.9
	1.0	6.0	623	510	113	18.1	0.7	4.9	834	714	120	14.4
	1.3	6.5	568	483	85	14.9	0.6	6.4	683	542	141	20.6
Mean	0.9	5.9	691	576	115	16.7	1.0	6.4	711	583	128	18.0
't' value	27.3*		26.7*				30.7		26.7*			

The 't' value was calculated at 11 df

* P = 0.05

by subjecting the data to paired 't'- test.

The mean pod damage by *H. armigera* in the protected and unprotected plots was respectively 0.9 and 5.9% in 1984 and 1.0 and 6.4% in 1985. The loss in grain yield in the unprotected plot compared with the protected plots was 115 kg/ha (avoidable loss 16.7%) in 1984 and 128 kg/ha (avoidable loss 18%) in 1985. Sithanantham *et al.* (1984) reported that the avoidable loss due to *H. armigera* in chickpea at Bikaner and Hanumangarh (Rajasthan) was 16.7 and 12.3%, and at Patancheru (Andhra Pradesh) was 20% (in large-plot tests conducted during 1975-82).

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