

Abstract

In Honduras, insect pests attacking stored dry red beans include, *Zabrotes subfasciatus* and *Acanthoscelides obtectus*. Laboratory experiments determined weight losses caused by selected densities of these bruchids infesting three susceptible varieties of dry beans cultivated in Honduras. Catrachita, Danli-46, and Desarrural (red bean varieties), and two isolines of a black bean variety Porrillo-70 (Arcelin⁺¹ and Arcelin-) were used. The isoline Arcelin⁺¹ had previously shown resistance to *Z. subfasciatus*. As expected, as infestation densities of *Z. subfasciatus* and *A. obtectus* increased, weight loss increased. The isoline Arcelin⁺¹ experienced lower losses from *Z. subfasciatus*. The isoline Arcelin- experienced the lowest loss when attacked by *A. obtectus*. Related studies assessed the general impact of interspecific competition among these bruchids. Mixed species populations increased at 80 days but decreased by 120 as the food source was depleted. Sex ratios of 0.73X:1X for *A. obtectus* and 0.93X:1X for *Z. subfasciatus* were observed. Adults of *Z. subfasciatus* were significantly more numerous than *A. obtectus* when both species were infesting the same food source. A survey evaluated weight losses in stored beans caused by these bruchids during 1991 in three southeastern Honduran communities. Weight losses after seven months of storage reached 8.5%. Storage losses caused by insects and by factors other than insects were estimated at 6.9% and 1.6%, respectively. Another study conducted in 1993 in three southeastern Honduran communities evaluated economic losses associated with bruchid infestations in dry beans stored by subsistence farmers. Postharvest weight losses reached 5.5%. Field losses and storage losses were 2.4% and 3.1%, respectively. Bruchids accounted for 24.5% of the combined losses. Applying the market value of beans at time of scarcity, the postharvest monetary loss reached US\$14.80 to US\$20.10 per farmer. This loss represents 2.9 to 3.9% of the annual per capita income. Avoiding this loss, farmers could finance 14.2 to 19.2% of production costs of their bean crop. The value of postharvest losses would allow the farmer to purchase enough dry beans (22.5 kg) to feed an average family for 49 days. When extrapolating the value of all postharvest losses, monetary losses nationwide reached US\$2.6 to 3.5 million per year. Monetary losses caused by insects were estimated at US\$670,500 to 908,900.