

In the same study, previous infestation of the wooden storage structure allowed the larger grain borer to colonize the maize much more quickly after harvest in the second year of study. Presumably infestation of the wooden frames of stores is an important factor affecting the early establishment of larger grain borer in many places, though this does not seem to have been investigated experimentally and no recommendations seem to be available for safe, effective disinfestation of traditional storage structures.

Flight activity and pest infestation

The use of pheromone-baited flight traps (reviewed more fully below) has recently provided new insights into the importance of flight activity in the ecology of the larger grain borer. However, the results need to be interpreted with caution in the absence of information as to which sectors of the population are in fact attracted to the traps.

Year-round monitoring of flight traps in Mexico (Ríos, 1991) and over two years in Honduras (Novillo, 1991) suggested that captures were closely correlated with rainfall, with much reduced flight activity in the winter and dry season, respectively. In both studies, an increase in trap captures early in the rainy season (or summer, in Mexico) corresponded with an increase in infestation levels in stores, though in both cases there was a simultaneous increase in recruitment within the grain, presumably corresponding to improving environmental conditions. In these studies, captures in unbaited sticky traps within stores increased with larger grain borer abundance in the grain at the end of the storage period. An earlier study in Mexico, on the other hand, provided evidence of periodic, coinciding peaks in sticky-trap catches and infestation of the grain (Garduño, 1988). There was no evidence of increasing trap catches in the general environment at the time of maize maturity in the field or at the time of the maize harvest (during the dry season); indeed, catches were at their lowest during this period. This would tend to contradict the proposal of Laborius (1990b), based on laboratory studies (Detmers, 1988), that larger grain borer emerges from refuges in wood in response to drying conditions and so is well-placed to infest the newly-stored maize. Studies of daily flight activity carried out in Honduras at five different occasions over a year consistently demonstrated that larger grain borer has two sharp peaks of activity, between 6:00 and 8:00hrs and between 18:00 and 20:00hrs, with minimal flight activity at other times of the day or night (Novillo, 1991).