Title Optimal clutch size and oviposition strategy for the maize weevil, *Sitophilus zeamais*.

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Abstract

Facing an oviposition host, a female insect must make at least two decisions: (1) where to lay her eggs and (2) how many eggs to lay in each site. The answers to these questions could explain the oviposition strategy, which determines fitness of offspring and growth rate in the population. Experiments were carried out to investigate the egg-laying behaviour of the maize weevil, *S. zeamais*. The selection of the oviposition site by the maize weevil and the effect of the presence of egg plugs on oviposition were studied. The distribution of the number of eggs per grain shows a contagious pattern due to a tendency of females to lay more than one egg on the same grains. The behaviour is independent of grain size and grain availability. No relationship was noted between the number of eggs laid on the grains and the size of the adults resulting from the offspring. Consequently, the possibility that this behaviour reflects an adaptive strategy of *S. zeamais* is discussed.