ABSTRACT

The general biology and ecology of sweet potato, Ipomoea batatas (L.) Lam. and its pests with particular reference to Megastes grandalis are reviewed.

The durations of the stages in the life cycle were investigated and the life span (from hatching to adult death) was found to be 51.10 ± 0.56 days.

The growth of M. grandalis larvae was investigated and the number of instars determined. 94% of the larvae had 7 instars, the remainder completed 8 instars.

Relative humidity was found to affect the hatchability of the eggs, but it did not affect emergence of the adult. Maximum percentage of eggs hatched was found to occur between 87 - 100% humidity. Under laboratory conditions the hatchability of the eggs was found to be 58%.

Mated females were found to lay 158 ± 10 eggs whereas the mean total eggs content was found to be 215 ± 6.

53% of captive females laid all their eggs the first 2 nights after mating, while 13% laid over 4 nights.

The size of females as measured by wing span and pupal length was found to be closely correlated with their egg potential.

During the second crop, May to November, larval infestation was found to be highly variable. In fields treated with insecticide the highest infestation was 67% whereas in fields not treated the maximum recorded infestation was 90%.

The pattern of infestation indicated that there was no edge effect on oviposition.

Of 1870 infested plants examined, 77% were attacked by a single larva. The maximum number of M. grandalis stages found on the same plant was 5. Low levels of infestation was probably due to single random egg laying while higher levels (quadruple and pentad) was probably due to oviposition by different females on the same plant.

M. grandalis attack was found to reduce the weight but not the number of tubers produced. Most frequently the larvae were found to enter the plant at the level of the first emergent node and tunnel downwards sometimes entering a tuber. The larvae moved back into the stem for pupation, most pupae were found between the first node and first tuber junction.

In the cultivars of sweet potato investigated the larvae were found to produce a tunnel long enough to reach the first tuber. No significant difference was found in the level of attack on four cultivars, but the females were found to have a highly significant oviposition preference for A 28/7.

Moulding was found not to be effective as a means of control while plants treated with the insecticide Birlane E.C. were found not to be infested until three weeks after the spraying was stopped.

M. grandalis adults were found not to be attracted to artificial light, but the males were attracted to virgin females in sex attractant traps. Five species of parasitoids were found attacking M. grandalis larvae.