Experiments were carried out to evaluate the efficacy of Metarhizium anisopliae (Metsch.) Sorok. (Ascomycota: Hypocreales)-treated semiochemical-baited traps for control of Amblyomma variegatum Fabriscius (Acari: Ixodidae) under field conditions. Unfed A. variegatum adults (118) were seeded in each 100-m plot and allowed to acclimatise for 3 days. On the fourth day (Day 4), an emulsifiable formulation of M. anisopliae (consisting of 49.5% sterile distilled water, fungal conidia, 49.5% corn oil and 1% Tween 80) titrated at 10(9)conidia ml(-1) was applied in semiochemical-baited traps (900 cm(2)) which were placed at five spots within the plot. The control and fungal treatments were repeated after 14 and 28 days soon after rotating the traps clockwise (45 degrees) in order to cover different sections of the plot. In the control plots, emulsifiable formulation without fungus was applied in the semiochemical-baited traps. Six weeks after the initiation of the experiments, five semiochemical-baited traps (untreated) were deployed in each plot for 3 successive days to trap ticks in the treated and control plots. The percentage of ticks recovered in the fungus-treated plots were significantly lower (31.1+/-5.2%) than in the control plots (85.6+/-3%) ($P<0.001$), which represented a relative tick reduction of 63.7%. Mortality of 93.8+/-2.3% was observed among the ticks that were recovered from the field and maintained in the laboratory for 2 weeks; while only 3.3+/-0.9% died from the control plots. The results of this study open up the possibility of developing an environmentally friendly and low cost application strategy to control Amblyomma ticks.