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## Fecundity parameters as bio-indicators of sustainable natural propagation of Barn Owls for rodent pest control

The effects of two chemical anticoagulant rodenticides and a biorodenticide based on the protozoa Sarcocystis singaporensis on the fecundity of Barn Owls (Tyto alba) was investigated. The clutch size recorded in the rodenticide free, biorodenticide, warfarin and brodifacoum treated plots were 5.43, 4.95, 3.95 and 4.83 respectively, although these differences were not significant. The hatching rates on the other hand were significantly different i.e. 84.42%, 75.38%, 55.32% and 42.50% respectively. The fledging rates were also significantly different with values of 77.92%, 50.76%, 36.17% and 10.00% respectively. The results indicated that baiting with Sarcocystis singaporensis lead to a hatching and fledging rates of 89.3% and 65.1% relative to those of the rodenticide free plots. In contrast, baiting with warfarin 55.1% in hatching rate and 46.4% in fledging rate in comparison to the rodenticide free area. The reduction in both hatching and fledging rates in brodifacoum treated plots were much lower i.e. 50.3% and 12.83% respectively. Analysis of warfarin and brodifacoum residues in egg shells using HPLC indicated that the higher the concentration of these residues, the lower the egg shell mass and thickness. Warfarin and brodifacoum levels were negatively associated with egg shell mass (Pearson Correlation; r = -0.644; p < 0.01; and r = -0.746; p < 0.01respectively. Similarly the corresponding negative association between the levels of these rodenticides and egg shell thickness were given by the Pearson Correlation values r = -0.823; p < 0.01 and r = -0.871; p < 0.010.01 respectively. Egg shape quantified as the ratio of length to breadth (L:B) indicated that were evidence of a more rounded egg with higher levels of warfarin residues detected in the egg shell. Higher levels of brodifacoum residues indeed associated with a more rounded-shape egg (Pearson Correlation (r = - 0.459; p = 0.05).

## Biography

Hafidzi has completed his Ph.D in 1997 from University of Aberdeen Scotland. He is an Associate Professor at the Department of Plant Protection, Faculty of Agriculture, University Putra Malaysia. Has been working on Biological control of pest in particular vertebrate pest for the past 15 years. He has published more than 20 papers in reputed journals. He has been working on biological control of rats using raptors, and the conservation of the latter which has been threatened with the widespread usage of chemical rodenticides.

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