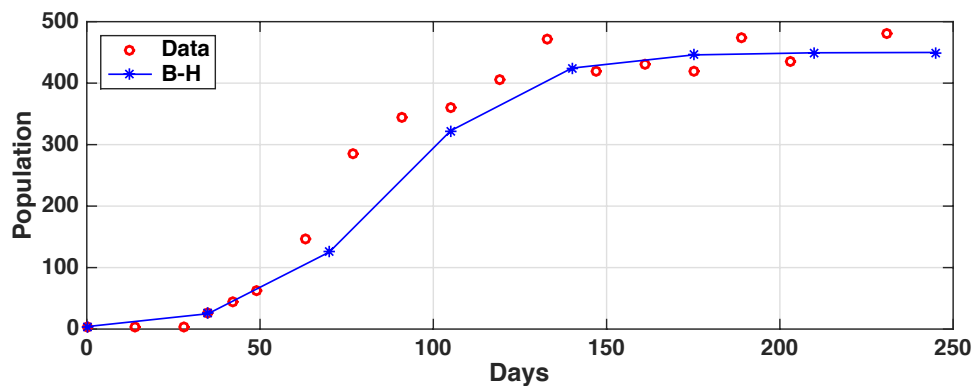


Sawtoothed Grain Beetle (*Oryzaephilus surinamensis*)



Experiment: 4 adult beetles are introduced into an environment where food is kept at a constant level. Every few days the number of adult beetles are recorded, and the data are below.



Life Cycle: A female can lay 45 to 285 eggs per year (the number of eggs decreases with the age of the female). Larvae emerge from the eggs in 3 to 10 days, and usually mature into adults within about 30 days.

$$\text{Beverton - Holt : } \kappa = \frac{a}{1 + bF_n}$$

$$\text{Ricker : } \kappa = a \exp(-bF_n)$$

$$\text{Hassell : } \kappa = \frac{a}{(1 + bF_n)^c}$$

$$\text{Hill : } \kappa = \frac{aF_n^{c-1}}{1 + bF_n^c}$$

$$\text{Maynard - Smith : } \kappa = \frac{a}{1 + bF_n^c}$$

$$\text{Logistic : } \kappa = 1 + r(1 - F_n/K)$$

Data from: A. C. Crombie (1946) On competition between different species of graminivorous insects, Proc. R. Soc. (B), 132, 362-395.