

Baranyi-Roberts model equation is:

$$N_t = N_0 \times (A/B)$$

where

$$A = 1 + C - \exp(-\mu_{max} \times \lambda)$$

$$B = 1 + (A - 1) \times (N_0/N_{max})$$

with

$$C = \exp(\mu_{max} \times (t - \lambda))$$

t is time. The parameters to estimate are μ_{max} , λ , N_0 and N_{max} .

The noisy output is defined as:

$$N_t = (1 - \%noise) \times N_t + \xi(N_t \times \%noise)$$

where ξ is a random number from Poisson distribution with mean parameter $N_t \times \%noise$.

Example of Baranyi-Roberts curve

Time unit is hour. Maximal time is 500h. $\mu_{max} = 0.05$, $\lambda = 40$, $N_0 = 230$ and $N_{max} = 4e8$.

