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Application of non-linear models in description of growth of dual purpose FUNAAB Alpha chickens

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Supplementary Table 1: Equations for growth models used in this study.

Model	Equation	Inflection time	Inflection point	Relative growth rate	No of parameter
Brody	$Y_t = A(1 - Be^{-kt})$	Doesn't exist	Doesn't exist	$k((A/Y_t) - 1)$	3
Gompertz	$Y_t = A \exp(-Be^{-kt})$	A/e	$\ln(B)/k$	$k((A - Y_t)/A)$	3
Logistic	$Y_t = \frac{A}{1 + Be^{-kt}}$	$A/2$	$\ln(B)/k$	$k * \log\left(\frac{A}{Y_t}\right)$	3
Negative exponential	$Y_t = A(1 - \exp(-kt))$	Doesn't exist	Doesn't exist	$k((A - Y_t) - 1)$	2
Von Bertalanffy	$Y_t = A(1 - Be^{-kt})^3$	$A*(8/27)$	$\ln 3B(1/k)$	$3k((A/Y_t)^{0.3} - 1)$	3

Y_t = Observed body weight age at age t , A = mature weight, B = proportion of the asymptotic mature weight to be gained after hatching, also called constant of integration, e = Napier's base for natural logarithm given as 2.72, k = is the coefficient of intensity of growth (also known as maturity index) and t = age in weeks.

Supplementary Table 2: Goodness of fit parameters

<i>Goodness of fit</i>	<i>Equation</i>
Coefficient of determination (R^2)	$1 - \left(\frac{SS_{Error}}{SS_{Total}} \right)$
Akaike's information criterion (AIC)	$n \cdot \ln \left(\frac{SS_{Error}}{n} \right) + 2K$
Bayesian information criterion (BIC)	$n \cdot \ln \left(\frac{SS_{Error}}{n} \right) + k \cdot \ln(n)$
Mean square error (MSE)	$\frac{SS_{Error}}{n - k}$
Root mean square error (RMSE)	$\sqrt{\frac{SS_{Error}}{n}}$
Residuals (RES)	Observed body weight - predicted body weight

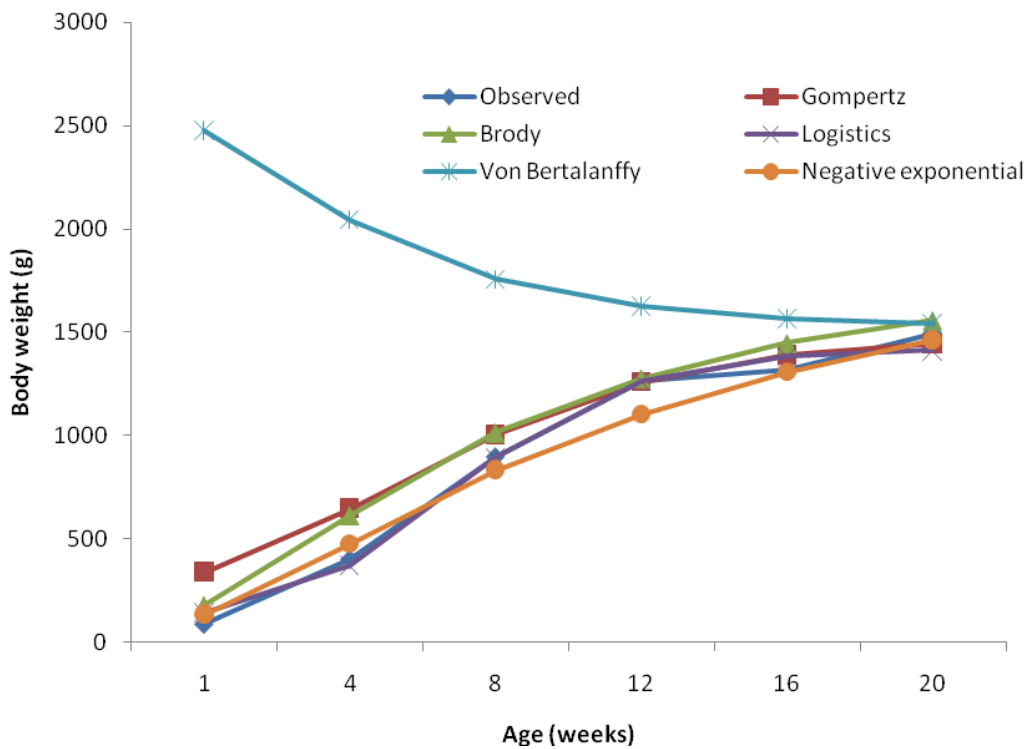


Figure 1: Observed and predicted bodyweight of normal feather chickens

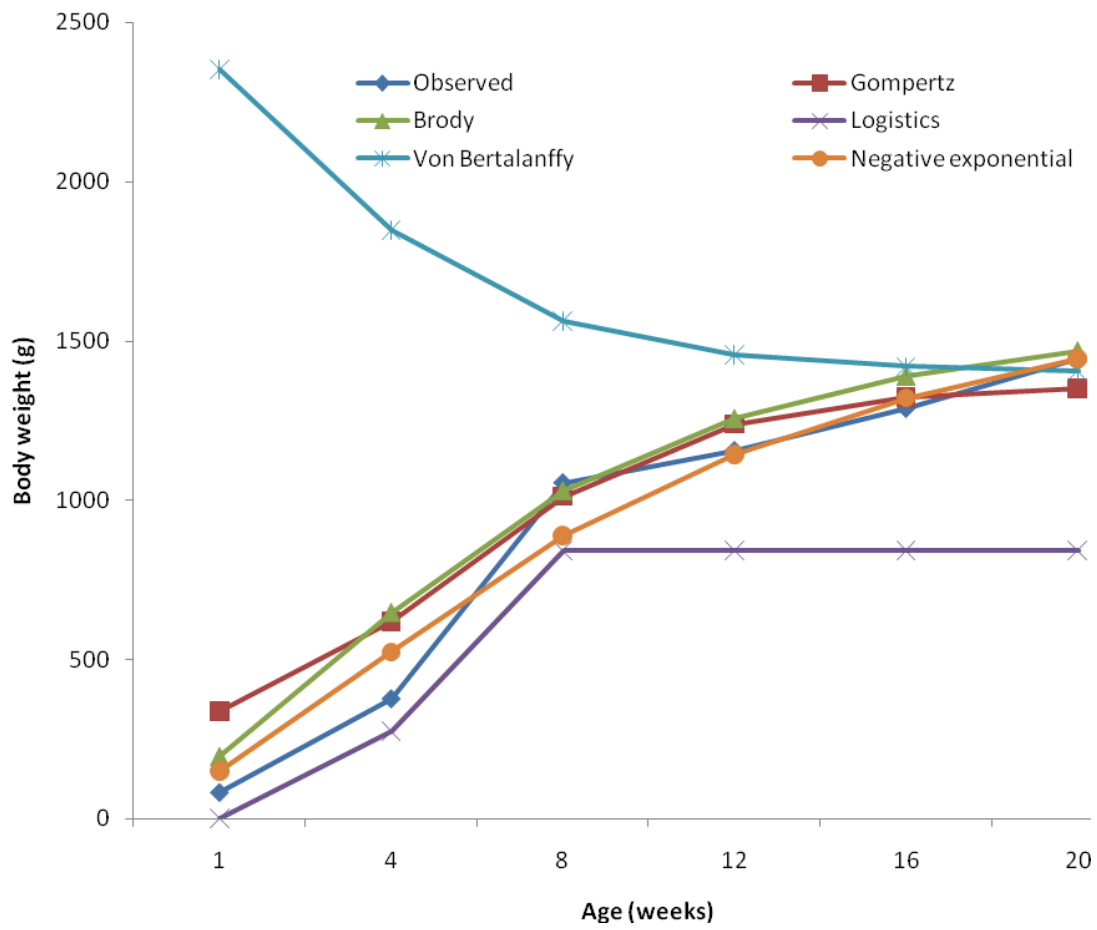


Figure 2: Observed and predicted bodyweight of naked neck chickens

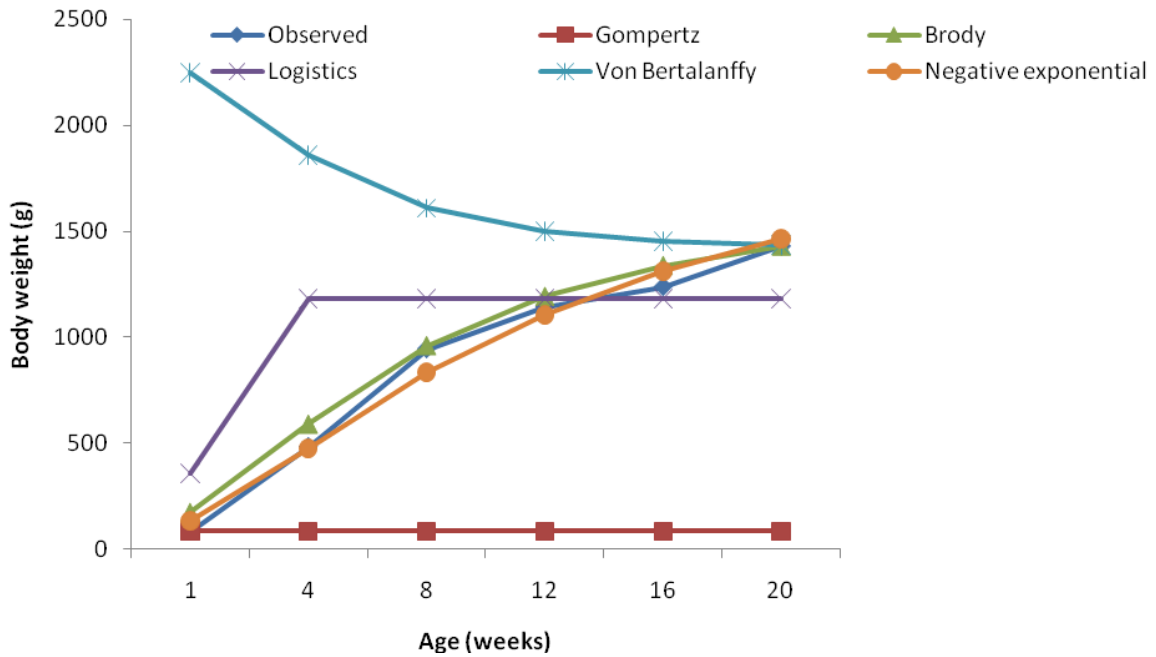


Figure 3: Observed and predicted bodyweight of frizzle feather chickens

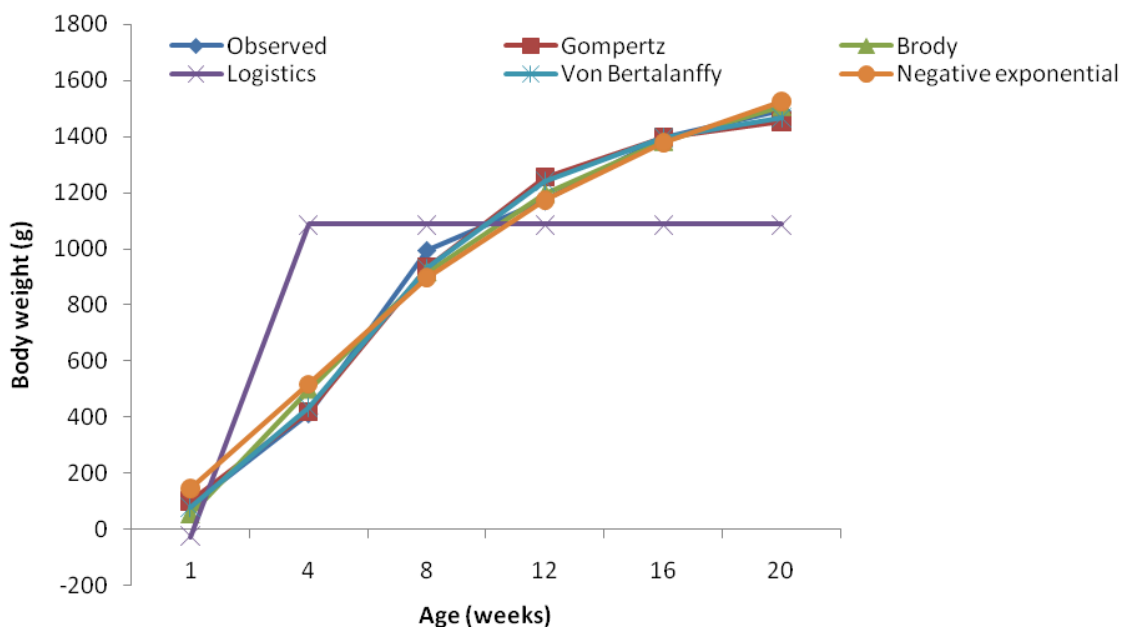


Figure 4: Observed and predicted bodyweight of male chickens

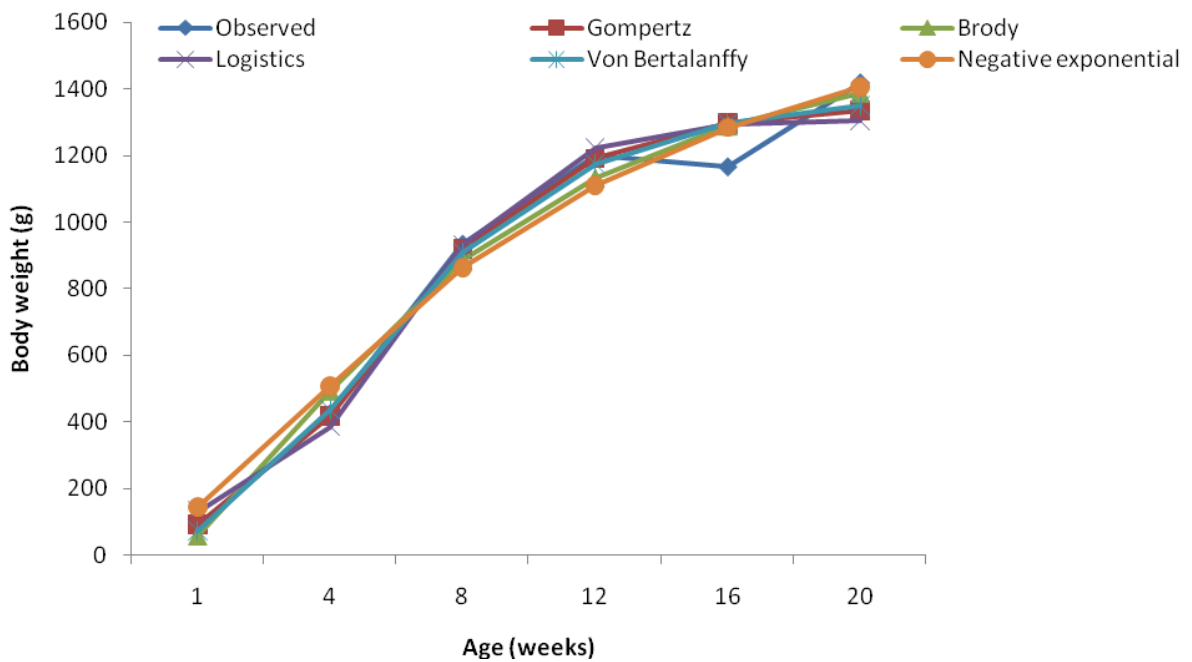


Figure 5: Observed and predicted bodyweight of female chickens

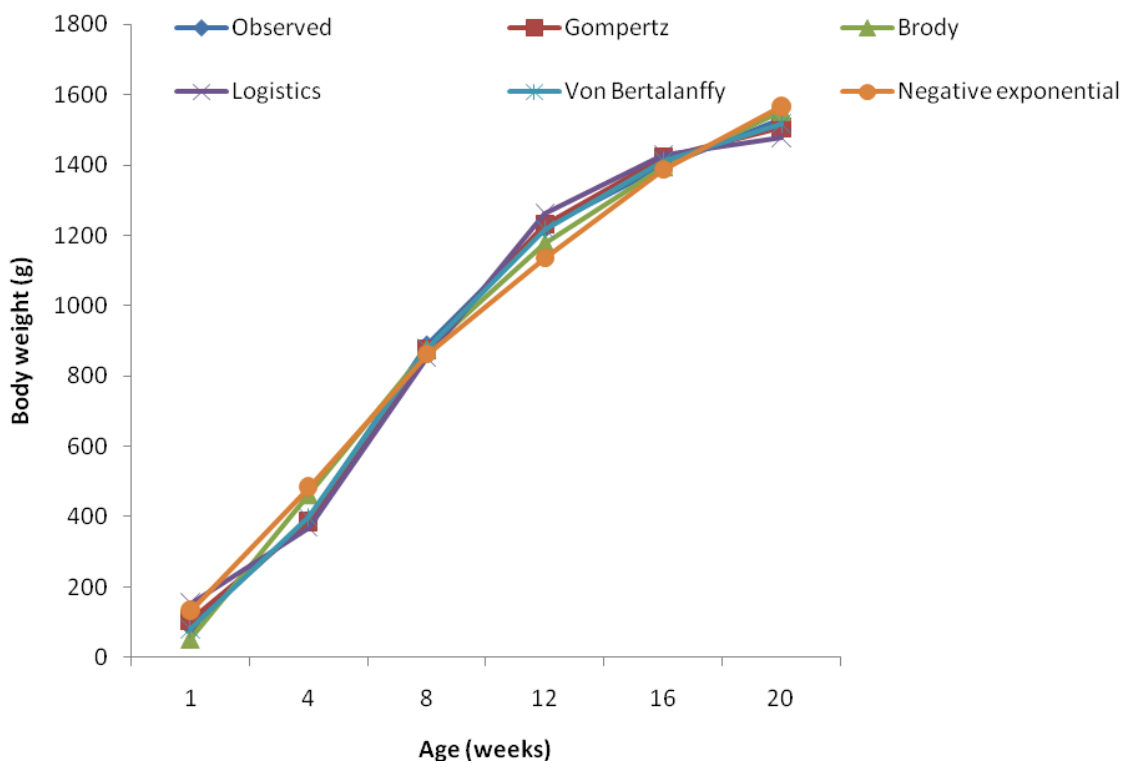


Figure 6: Observed and predicted bodyweight of male normal feather chickens

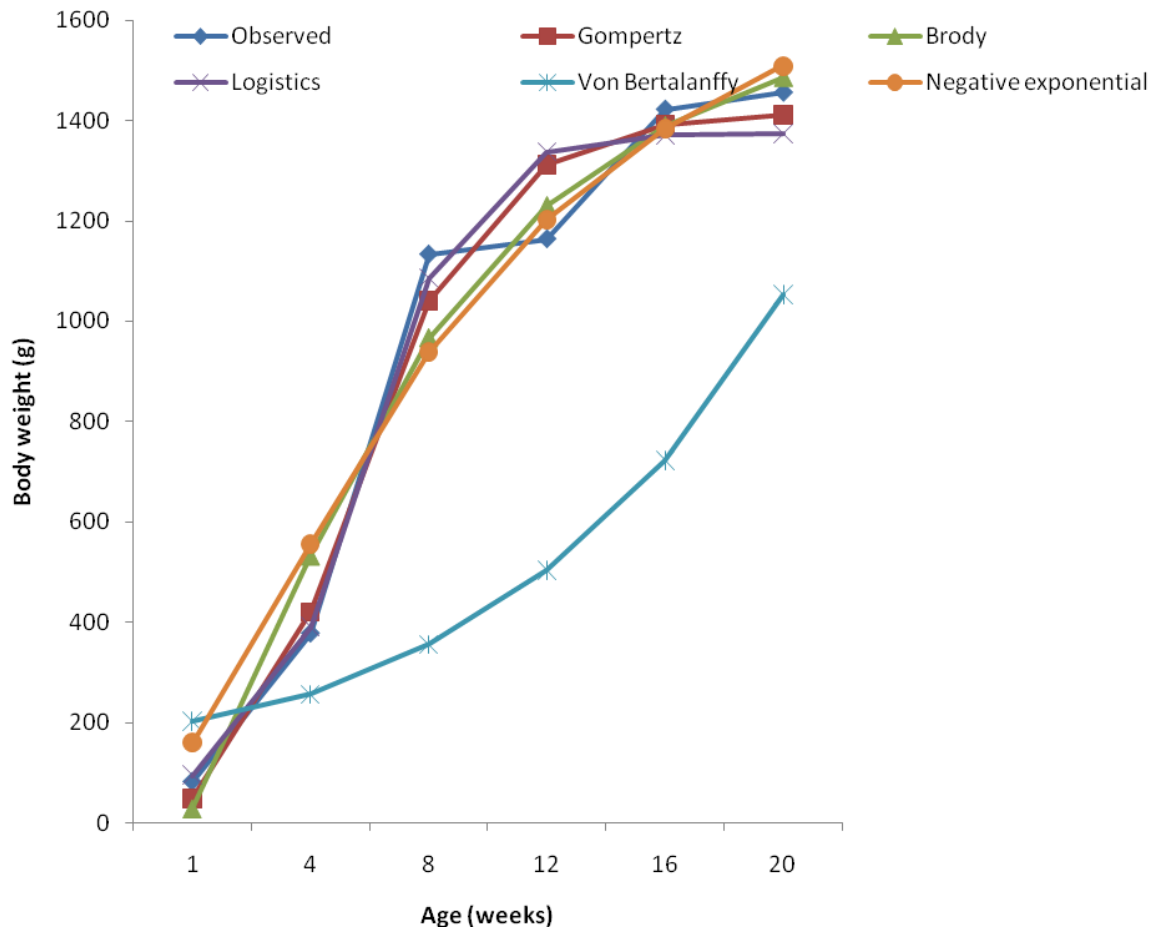


Figure 7: Observed and predicted bodyweight of male naked neck chickens

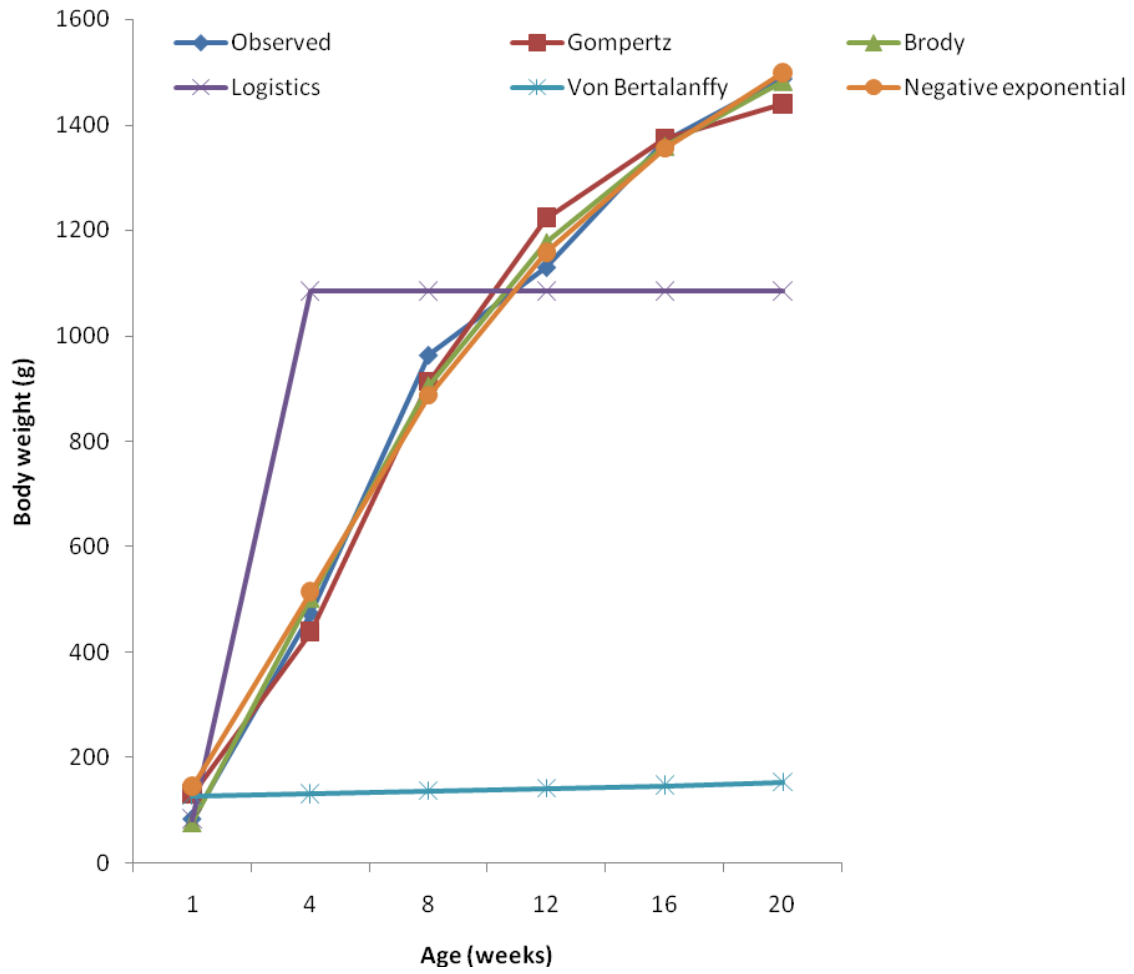


Figure 8: Observed and predicted bodyweight of male frizzle feather chickens

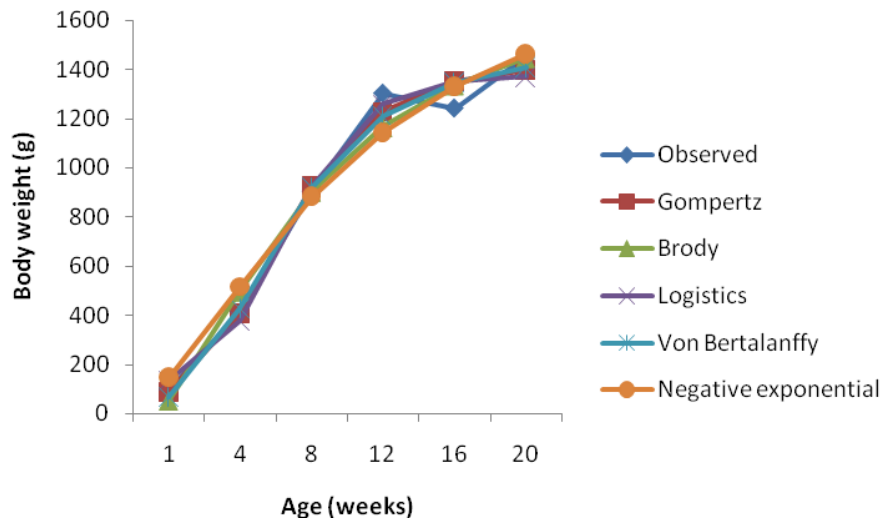


Figure 9: Observed and predicted bodyweight of female normal feather chickens

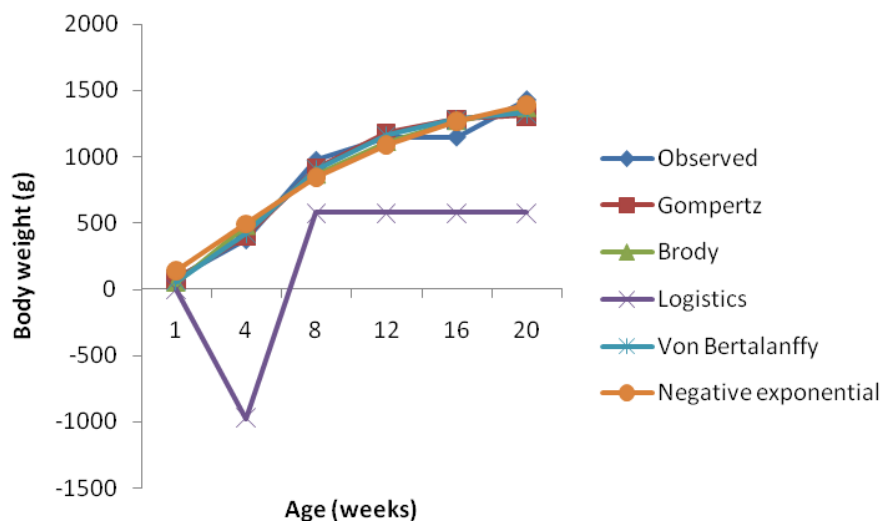


Figure 10: Observed and predicted bodyweight of female naked neck chickens

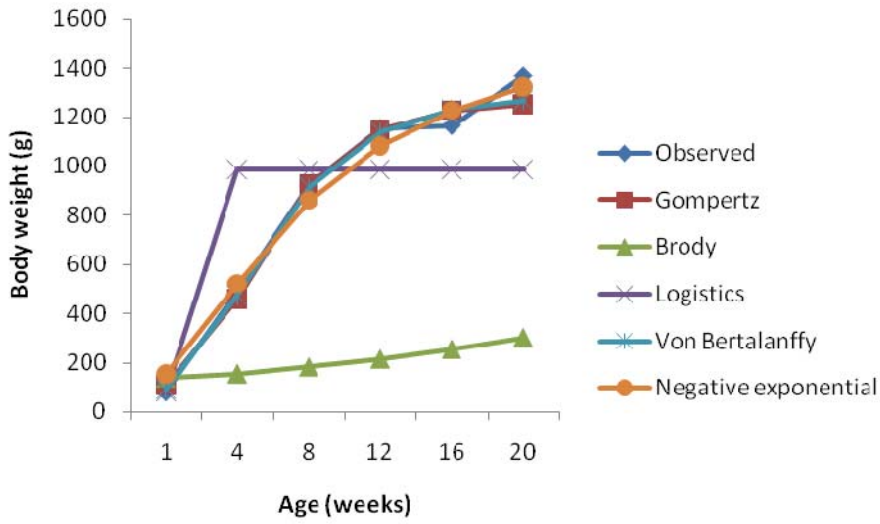


Figure 11: Observed and predicted bodyweight of female frizzle feather chickens