Anthony Le

ST 511 (Tu 16:00-16:50)

29 November 2016

Homework 9

Question 1:

1. It is estimated that the mean pH of steer carcasses at 6 hours after slaughter will be between 5.630 and 5.860 (90% confidence interval).
2. It is predicted that the pH of steer carcasses at 6 hours after slaughter will be between 5.430 and 6.062 (90% prediction interval).
3. for

=0.08108506

(SE for calibration confidence interval)

Approx. 90% CI: log hours

= (SE for calibration prediction interval)

Approx. 90% calibration interval: log hours

The log time at which the mean pH reached 7.0 is estimated to be . It’s std error is 0.112, so a 90% confidence interval is from -0.230 to 0.0.185. Hence the estimate of time required is 0.978 hours, with approximate 90% confidence interval from 0.794 to 1.203 hours. To predict the time when the pH of steer carcasses reach a pH of 7.0, the std error is 0.247, so the interval for log(is from -0.481 to 0.436. The estimate of the time is the same, 0.978 hours, with approximate 90% calibration prediction interval is from 0.618 to 1.547 hours.

Question 2:

95% for

The estimated relationship between weight lifting mass and health status measured by T-cell response is summarized in the figure on the next page. The solid line shows the estimated mean mass (g) as a function of T-cell response (mm). It is estimated that for every one-unit (mm) in T-cell response, mean lifting stone mass increases by 3.266 to 17.064g (95% CI for ). Although the relationship between mean lifting mass and health status measured by T-cell response (mm) approximates a straight line, the value of the line at T-cell response of 0mm is apparently not 0. The CI summarizes the uncertainty which is quite large and even though an exact linear relationship between lifting mass and T-cell response is assumed, measured lifting masses do not fall exactly on the straight line because of measurement errors between male birds.

