**Chi-square analysis for pre-adult survival**

**Brood success**

Defined as if at least 1 larvae survives per brood or if the carcass is completely destroyed – also a test for fungus growth

count<-matrix(c(8, 22, 43, 0, 0, 6), nrow=3)

count

chisq.test (count)

Result

[,1] [,2]

[1,] 8 0

[2,] 22 0

[3,] 43 6

Pearson's Chi-squared test

**X-squared = 3.9754, df = 2, p-value = 0.137**

Warning message:In chisq.test(count) : Chi-squared approximation may be incorrect

No differences in brood success between the different densities. Probably due to few High density broods to detect an effect. Likely there is one and may become apparent if experiment repeated and combinded.

**Survival to adulthood**

The number of larvae that ecolosed into adult beetles from the original number placed onto the carcass.

count2<-matrix(c(303, 394, 158, 97, 46, 87), nrow=3)

count2

chisq.test (count2)

Result

[,1] [,2]

[1,] 303 97

[2,] 394 46

[3,] 158 87

Pearson's Chi-squared test

**X-squared = 62.6758, df = 2, p-value = 2.455e-14**

The survival of larvae to adulthood differed between all three groups. Medium>High>Low

**Survival to dispersal**

The number of larvae alive and dead at dispersal from those originally on the carcass.

count3<-matrix(c(313, 402, 171, 87, 38, 74), nrow=3)

count3

chisq.test (count3)

Result

[,1] [,2]

[1,] 313 87

[2,] 402 38

[3,] 171 74

Pearson's Chi-squared test

**X-squared = 53.7936, df = 2, p-value = 2.084e-12**

Densities differed from each other in those that survived to dispersal. Similar patterns to above.

**Survival of ecolosion**

The number of larvae that survive ecolosion from those that started.

count4<-matrix(c(303, 394, 158, 10, 8, 13), nrow=3)

count4

chisq.test (count4)

Results

[,1] [,2]

[1,] 303 10

[2,] 394 8

[3,] 158 13

Pearson's Chi-squared test

**X-squared = 11.3239, df = 2, p-value = 0.003476**

Density treatments differed from each other in the number of larvae that survived ecolosion.