



Repeated Measurements – example 2

The data come from an experiment on Ladybirds (“nyckelpigor”; an insect). The purpose of the experiment was to investigate whether different treatments had different attraction on ladybirds and whether this changed with time.

Plots of land were divided into three blocks, each containing ten plots. The plots were treated with one of the ten treatments. The number of ladybirds was counted on each of the plots after 5, 6, 9, 13, 16 and 21 days.

The variables in the enclosed file are

| | |
|-------|-------------------------------|
| Obs | Observation number (not used) |
| Plot | Plot number |
| Treat | Treatment |
| Block | Block |
| t | time (5, 6, 9, 13, 16 or 21) |
| y | Number of ladybirds |

Analyze these data to find out if different treatments have different attraction on ladybirds and whether this changes with time.

The data can be found in the files ladybirds_data.sas or ladybird.txt.

Spatial correlation

Bayisa (2010) discussed statistical analyses of a bread wheat experiment. In this experiment, 18 varieties were investigated in four replicates (i.e. blocks).

| | |
|-----------|-----------------------------|
| Variety | bread wheat variety (1-18) |
| Replicate | replicate=block (1-4) |
| Northing | northward-measured distance |
| Easting | eastward-measured distance |
| Yield | Yield |

Fit a randomized complete block (RCB) model and compare this model with alternative mixed models that accounts for spatial correlation between plots.

Is the difference between varieties 1 and 3 significant (with or without adjustment for multiple comparisons)? Which is the top performing variety?

The data can be found in bayisa_data.sas or bayisa.txt.