General issues

- Nested designs usually include levels of random subsampling and are equivalent to group means
- Type III SS usually recommended
- Missing cells mean losing some possible interactions- check with experts
- Interactions are biologically interesting/important
- Pooling may be done if careful

Hints

- Use proper terms as errors with random effects and make sure your software does it right (e.g. use EMS in JMP, not REML)
- Increasing number of replicates in nested design increases power, not number of measure per replicate
- Simulate factorial analyses using ‘fake’ data (random numbers as Y) before conducting experiment to determine whether the df are what you think they are
Block designs

- Some experiments include ‘blocks’ where each treatment imposed on each member of a block
- Usually blocks are selected at random
- Used when environmental variation is supposed to be high (Fig 10.1)
  - Experimental units grouped into blocks at scale chosen by investigator
  - Experimental units are naturally established

Statistical model

- Sometimes a block design may be analyzed as factorial ANOVA if multiple measures per treatment X block combination exist
- True block designs have 1 observation per treatment by block combination (Table 10.1)
- Statistical model on page 268