

**Statistics 5303  
Fall 2000**

**Exam #2 Data**

Our second exam is Wednesday, November 15, in class. This exam is open book and open notes. Analyze the data set below and bring notes on your analysis to class. Answer the exam questions on these data from your notes; attach your notes to your exam when done. In your analyses, remember to check for assumptions and study interactions. Your analysis should go beyond just the ANOVA and what is significant; it should try to explain what is going on in the data.

This preliminary analysis should be considered part of your exam. Do your own work. Discuss these problems only with the instructor.

(1) Plant breeders are trying to produce good hybrid barley. As part of the study, nine “parental” lines are crossed with three inbred “tester” lines producing 27 hybrids. The experiment is to determine the factors affecting the yields of the 27 hybrids. The experiment is conducted in four locations (Crookston, Waseca, Morris and St. Paul). At each location, four fields are chosen at random. Each field is split into 27 strips, and the 27 hybrids are randomly assigned to the 27 strips in each field. At the end of the season, the seed yield is determined for each strip (g/strip).

For our purposes, we may consider the four locations to be a random sample of locations. We anticipate that differences in meteorology and soils will cause yield differences by location. Similarly, some hybrids to do better in some locations, and so on.

The data for this experiment are in the file hybrids.dat.txt on the course web page (in matread format). There are five columns: location, replication, parental line, inbred line, and yield. Analyze these data for the effects of the factors on yield.