

DAY OF PLANTING EXPERIMENT

Scientists at the University of Wisconsin conduct experiments on a form of cabbage that grows very quickly. They use these cabbage plants for their studies much in the way that people who study animals often use mice. Both mice and these cabbages, called Wisconsin Fast Plants, help scientists learn about animals and plants more generally, because each shares much in common with other animals and plants.

To use the Fast Plants in their experiments, scientists believe that when the Fast Plants are planted does not matter. They will all grow in much the same way, so that they can easily compare the results of their experiments without having to worry about the time of planting.

A scientist, Dr. Hedi Baxter Lauffer, is not so sure. She knows that just by chance, not all plants grow exactly alike. So she expects to see some variation in any sample of plants that she grows. But recently she has started to think that maybe the time of planting does matter. To gather evidence, she grows two samples of Fast Plants under the same conditions of water, light, and fertilizer, but she plants one sample of 18 plants on June 27 and a second sample of 18 plants on June 30.

Dr. Baxter Lauffer collects many measures of plant growth, and her measurements are in the TinkerPlots file, 2plantingdates.tp. The measurements include the height of the plant on the 18th day of growth, the height to the first flower, the number of leaves, the number of flowers, and the width of the cotyledon. The cotyledon is measured by measuring its widest point, as shown in the photo.



Using this file, make a display to compare the 2 dates of planting for one of these measurements, the number of leaves on the stem. What do you notice? What does the mean tell you? How different are the means? Do you think this difference is likely due to chance? How might you make a model of what these differences might be, just by chance?

One model of chance differences can be found in 2plantingsrandom_modelPart1.tp. Runs of the model can be found in 2plantingsrandom_modelPart2.tp and 2plantingsrandom_modelPart3.tp

Should Dr. Baxter Lauffer be worried, or is the difference about what you would expect just by chance?

