PLANT-GROWTH EXPERIMENT

2. Problem Formulation

You are a member of a small agricultural experimentation team working for Harvest Vegetables, a company that grows vegetables organically without the use of any pesticides. The company produces and distributes several vegetables such as onions, carrots, peas, and tomatoes.

In an effort to produce large and healthy vegetables, Harvest Vegetables normally grows their plants in dark, rich soil. Recently, some field technicians have noticed considerable variability in the size of the plants. Some plants appear healthy and large, while others grown in the same field are very small.

There could be several explanations for the varying plant sizes. Seed variety is one. It could simply be the case that one variety grows better than the others. Method of watering may be another explanation for the varying plant sizes.

You wish to determine the reason for the varying plant sizes. Your objective is to design and carry out a small experiment to study the effect of seed type and amount of water on the growth of a particular type of plant. Due to budget, time, and space constraints, you will have only 24 small planting plots and 3 seed varieties.

After the data are collected, you will answer the following questions:

1. What is the effect of seed variety on the plant growth? Does it appear that plants obtained from one seed variety tend to grow faster than the other plants regardless of the watering system used?

2. Which watering system contributes the most to the growth of the plants?

3. Is there any interaction between seed variety and watering system in their effect on the plant growth? How strong is the interaction?