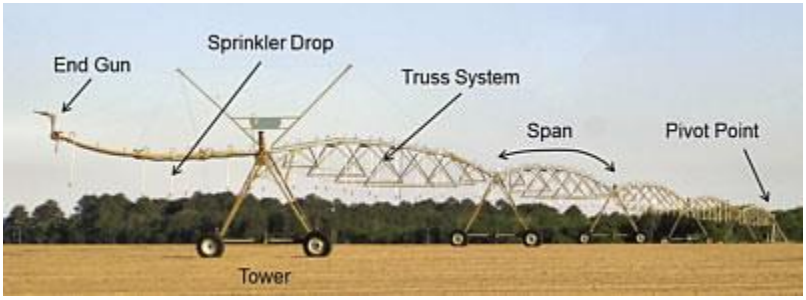
MA677 Midterm Project **Irrigation -- Those green circles**

Center Pivot Irrigation Systems are throughout the world and in about half the sprinkler irrigation systems in the U.S. Even if you haven't seen one up close, you have probably seen them from the air due to the distinctive visual pattern they create.



In simple terms, the system consists of a large arm, like the one pictured above, comprised of spans and towers. The arm is connected to a pivot point which provides power, water, and chemicals. The towers have powered wheels that propel the arm slowly around the pivot as water and chemicals are applied to the crops at controlled rates. Power required for each tower is about 1HP.

In the U.S., the large rotating arm is typically 1320 feet long (1/4 of a mile (440 yards) to the outer wheels. As shown in the picture above, there is usually an end-gun that extends about 100 feet beyond the outer wheels. Typical full rotation around the pivot takes slightly less than a day.

Center pivot systems are operated with a minimum amount of supervision, monitored with just a few simple statistics. One statistic is the rotation speed of the system. Although the speed is not directly observed, full rotation time for the system provides a way to calculate average rotation speed.

The file rot35.txt contains the rotation times for an irrigation system.

Calculate a 90% confidence interval for the speed of the rotating arm at the outer wheels.

Prepare a short explanation of your analysis for an audience that includes both data scientists and farmers.