INTERPRETATION ARTICLE

We all enjoyed the green grass in the Summer of 2007. We loved our water bills even more. With the heavy rains from Mother Nature, we didn't have to water our lawns as often. Next summer could be disappointing and EXPENSIVE if we don't plan. Recreating the green grass caused by abundant rainfall is difficult. We have to keep in mind the limited water supply available. Our choices will determine if clean water continues to be available.

Plants need water for photosynthesis. In photosynthesis, plants produce food from carbon dioxide and water when sunlight is available. Water is a critical factor that can limit a plants ability to grow. No water means wimpy plants. No water means less photosynthesis. Less photosynthesis means less green.

Plants take in carbon dioxide through their stomata--microscopic openings on the undersides of leaves. Water is lost through the stomata during transpiration. Transpiration, along with evaporation from the soil surface, accounts for the moisture lost from the soil.

Weather conditions play an important role in getting or keeping water for plant use. When it rains lawns require less irrigation. Automatic sprinklers or your watering schedule should be adapted to reduce overwatering. A key issue for keeping water available for plants is the rate of evaporation. When the evaporation rate is high, the water is added to the atmosphere not the soil. Three weather conditions that impact the rate of evaporation are temperature, relative humidity and wind speeds.

- **Temperature** – High temperature values result in high evaporation rates. Low temperature values result in low evaporation rates
- **Wind Speed** – High wind speeds result in high evaporation rates. Low wind speeds result in low evaporation rates.
- **Relative Humidity** – Low relative humidity values result in high evaporation rates. High relative humidity values result in low evaporation rates.

Wise use of water by homeowners not only helps protect the environment, but saves money and provides for optimum growing conditions. Simple ways of reducing the amount of water used for irrigation include watering when the evaporation rate is low, using soaking systems that place the water at the roots instead of on top of the leaves, and accounting for rainfall. Since the water is applied directly to the soil, rather than onto the plant, evaporation from leaf surfaces is reduced.

CLASSROOM ACTIVITY

We all love to walk across a nice green lawn. Many of us rely on automated sprinkler systems to provide water during dry times. Oklahoma cycles through extreme wet seasons like the Spring and Summer of 2007 and extreme droughts like 2005-06. How do we conserve water and maintain lush yards? One way is to water your lawn when the evaporation rate is low. A low evaporation rate gives the water an opportunity to soak into the soil and reach the plant roots. At times with high evaporation rates, most of the water joins the atmosphere instead.

1. The graphs provided contain data from 1994 to 2006. Each hour on the graph represents the average of all the data collected during the period. Use these graphs to help determine the best time for watering your lawn.

2. Determine the maximum and minimum temperature for each site (Sallisaw, Slapout, and Spencer).

3. Determine the maximum and minimum relative humidity for each site (Sallisaw, Slapout, and Spencer).

4. Determine the maximum and minimum wind speed for each site (Sallisaw, Slapout, and Spencer).

5. Knowing that a high evaporation rate is dependent on high temperature, high winds, and low relative humidity, which of the three sites will observe the highest evaporation rate (based on the max/min ranges from Questions 1-3)?

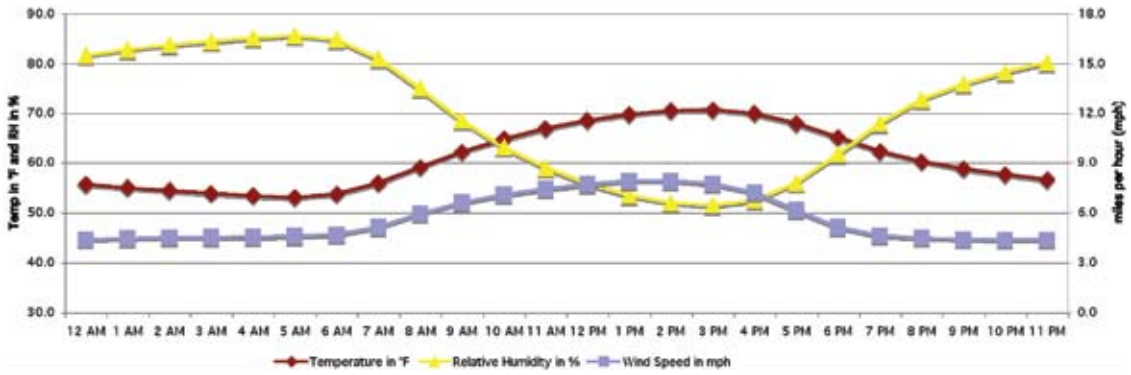
6. Knowing that a low evaporation rate is dependent on low temperature, low winds, and high relative humidity, which site will observe the lowest evaporation rate (based on the max/min ranges from Questions 1-3)?

7. For each site, what time of day is the evaporation rate high? Are the times consistent for all stations?

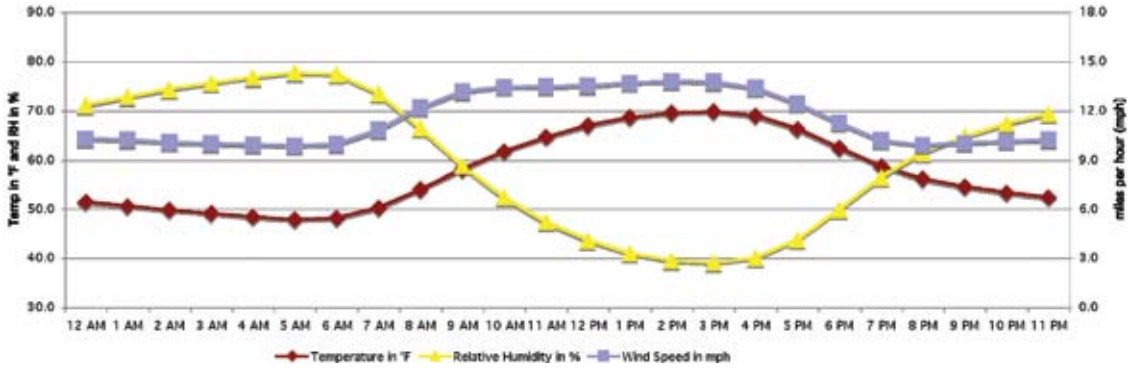
8. For each site, what time of day is the evaporation rate low? Are the times consistent for all stations?

9. You are writing articles on lawn watering for the Sallisaw, Slapout, and Spencer newspapers. Explain to readers the best time for watering and the worst time for watering.

Graph 1 - Average Hourly Values from 1994-2006 - Sallisaw, OK



Graph 2 - Average Hourly Values from 1994-2006 - Slapout, OK



Graph 3 - Average Hourly Values from 1994-2006 - Spencer, OK