Landscape Irrigation Using ET Based Controllers

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Justification:

This study was performed to test the use of a new technology to reduce the demand on municipal water sources while keeping an aesthetically pleasing lawn.

Objectives:

Compare performance of ET-based controllers to the performance of a standard timed controller by:
- Water application
- Turf appearance

Methods :

43 homes in the city of Sioux Falls, SD were placed into three groups: a control group which used a standard timed controller, a 70% group which replaced 70% of the depleted water, and a 100% group which replaced all of the depleted water. In this study a controller produced by ETwater was used. After each controller was installed, an irrigation audit was performed at each site to determine the uniformity of the sprinkler system. Monthly water use was provided by the city of Sioux Falls. Towards the end of the study period each year, pictures of the lawn were taken to be graded and the quality of each lawn was determined.


An ETwater 105 was selected for use in this study based on its ability to use weather data from SDSU weather stations.
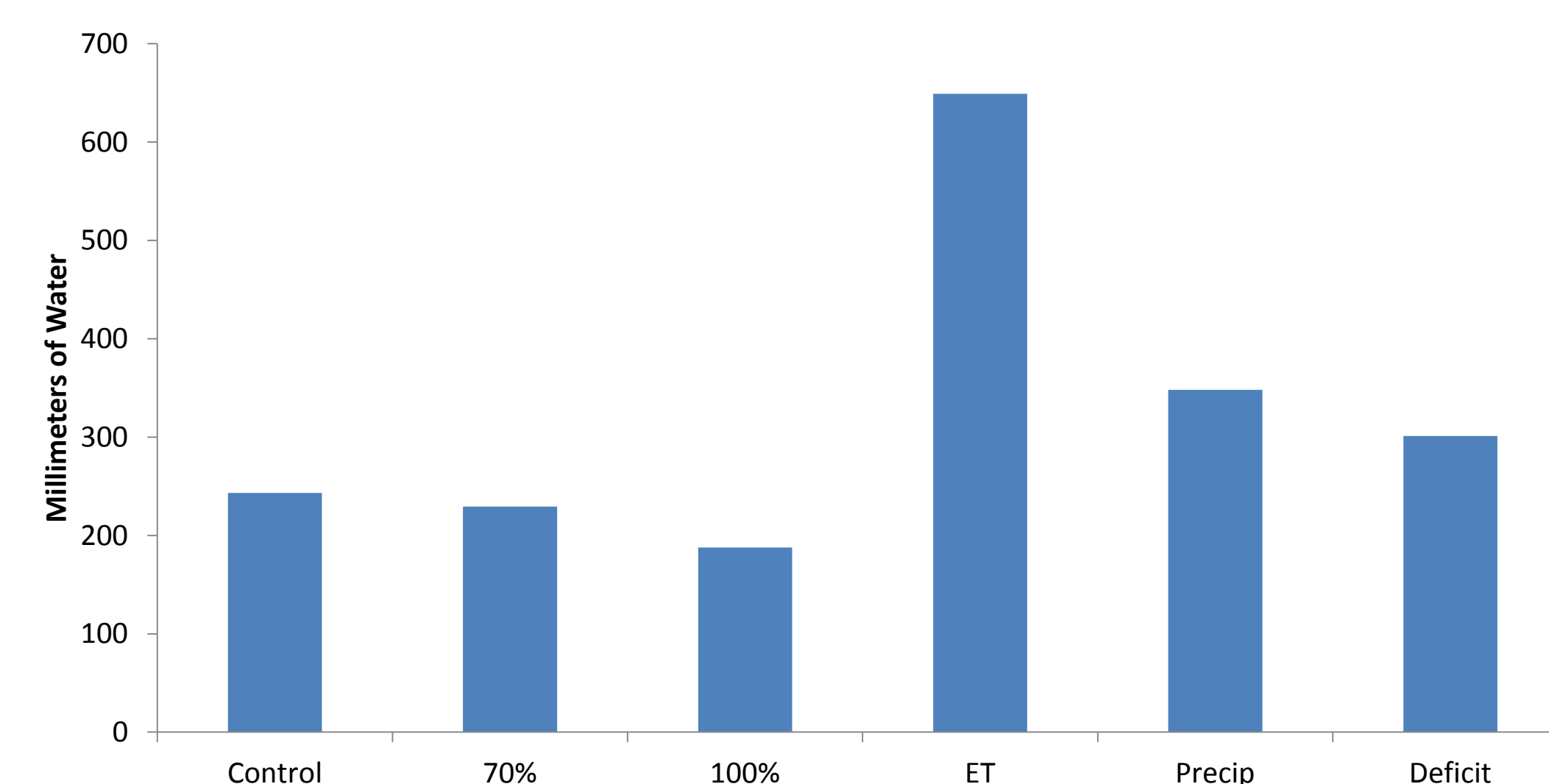

The deficit created by the lack of rain in 2011 was not completely replaced by any of the treatments. All users of the controllers have complete control of their watering system. This may be why the 100% treatment is lower than the 70% treatment. Some users in the 100% treatment may have turned down there irrigation systems while others in the 70% treatment may have increased watering.
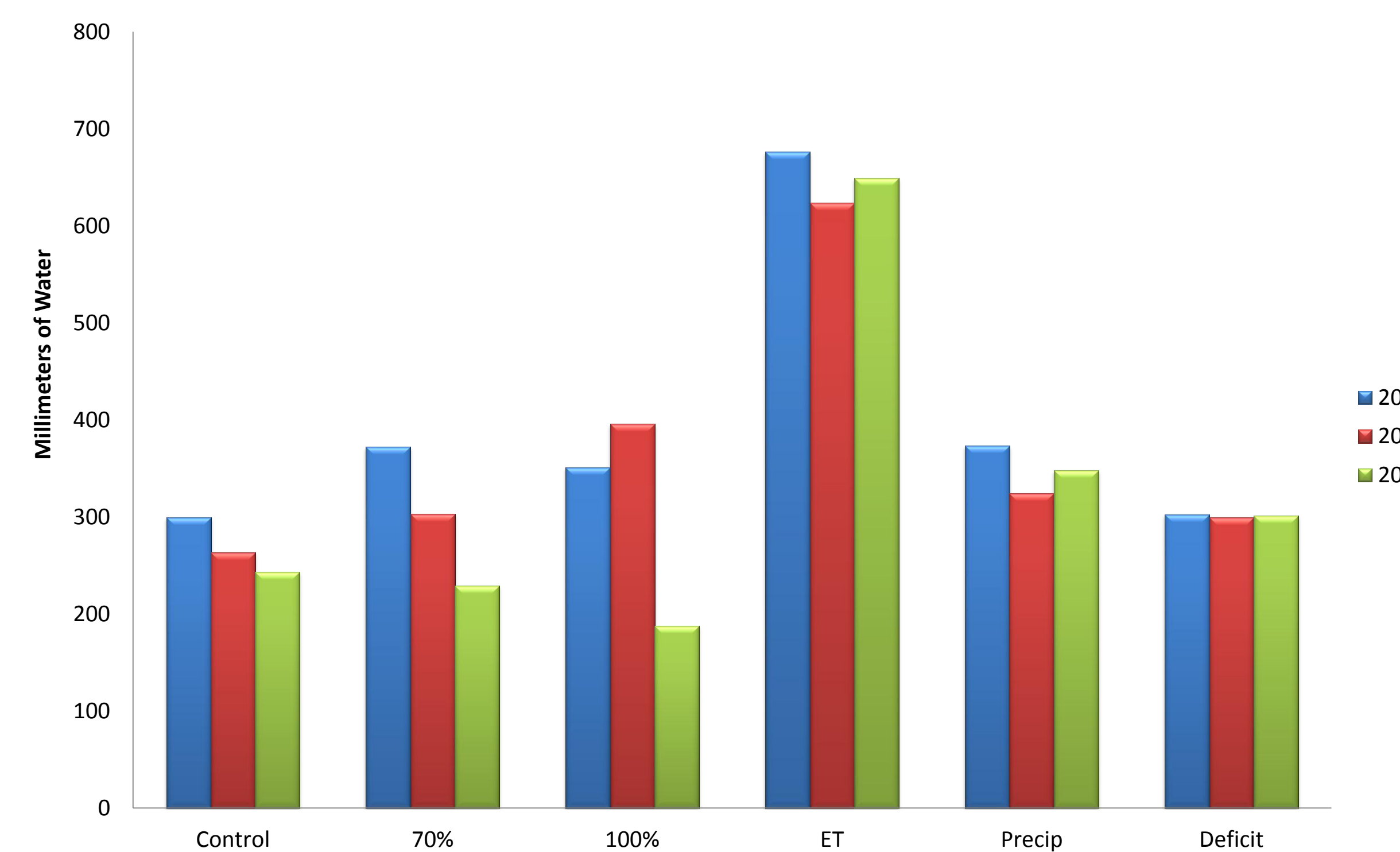
Results comparing 2011 to 2009 and 2008. Although water deficits were similar for each year, the amount of water used in each of the treatments has dropped. 2008 was used to gather information for each site. None of the sites used ET-based controllers and were all on the time based controllers. Therefore, the first real results were taken in 2009.
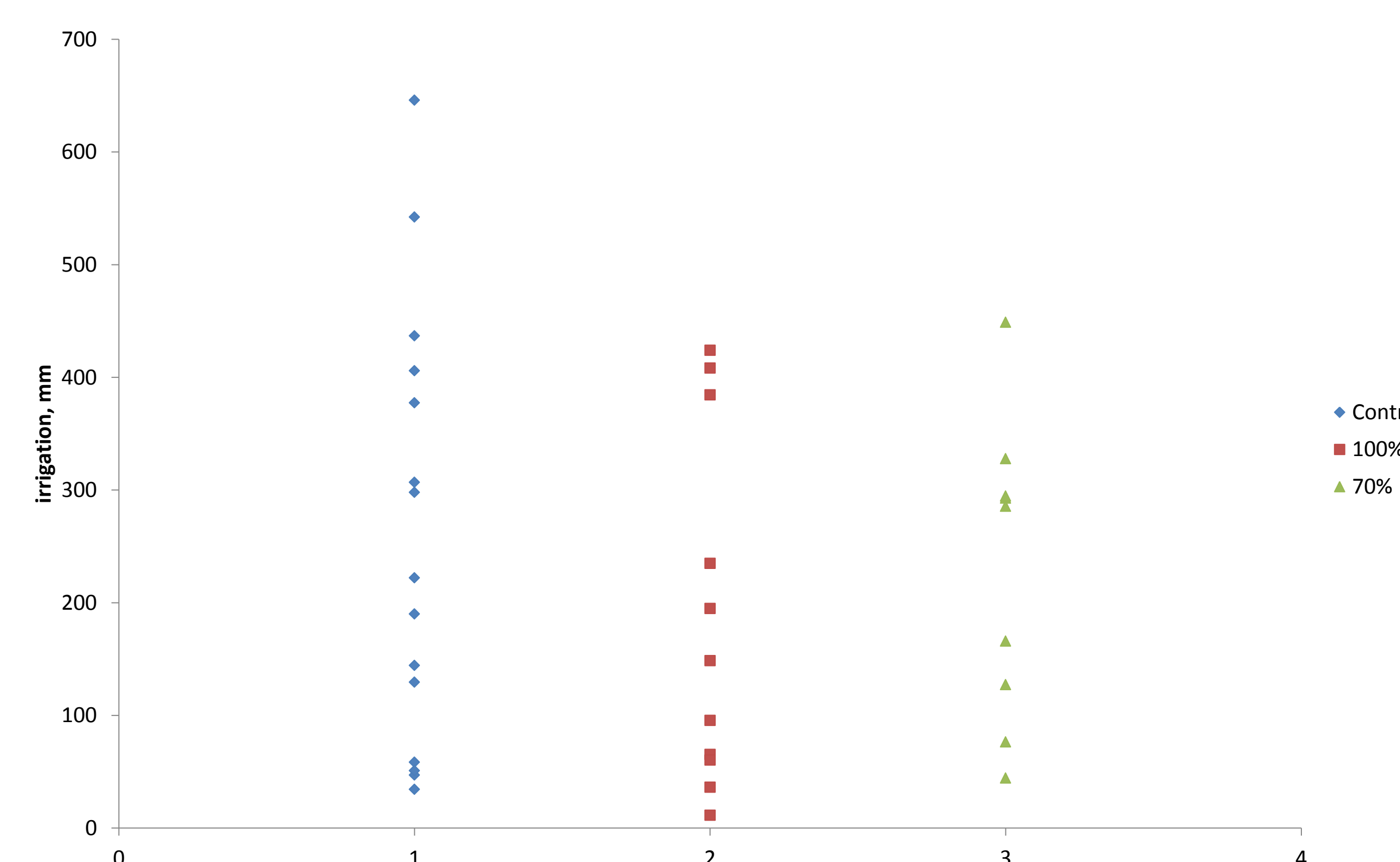
The amount of water used in millimeters at each site. Twp of the sites in the control group applied very high amounts of water when compared to the other members of the study. Cooperators in the study have complete control over their irrigation systems. This may be why there are such high values in the 70% group.
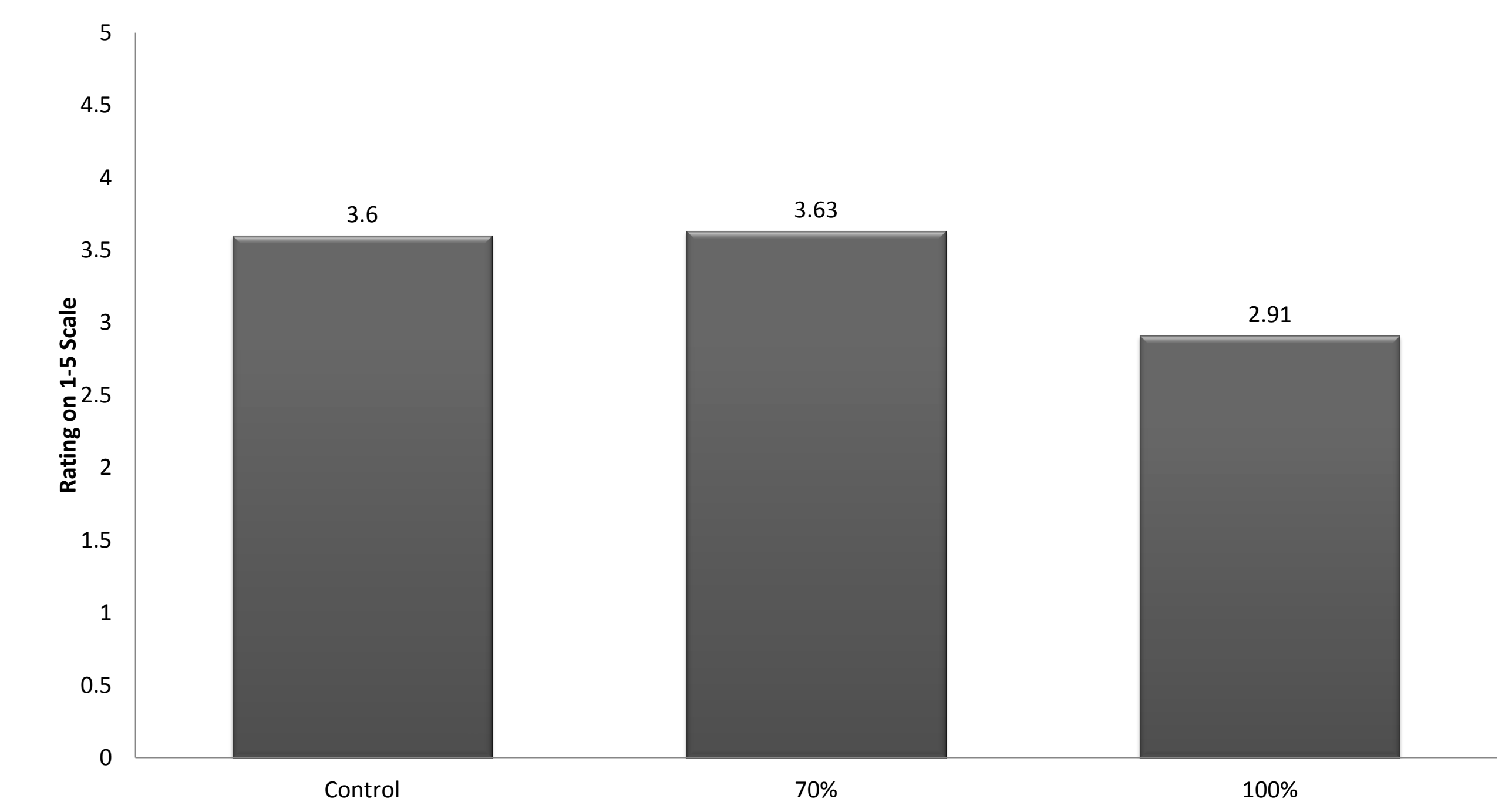
Preliminary grades of images taken at each site. The images were graded, so far, by three different people at different times on a scale of 1-5 with 5 being the best.

The lawn was in the 70% grouping which meant it received 70% of the seasonal ET minus the rainfall in irrigation. This image was chosen because the lawn is of uniform, high quality. It also shows that a large amount of watering is not necessary to keep a green lawn.

Conclusions:

Using an ET-based landscape irrigation controller is one way to lower water use. In 2009, the results from the study showed no real difference between any of the treatments. In 2010, the amount of rain that occurred in the growing season was so high that the study was a complete washout and no results were taken. Since the study has not been completed, no definite results can be assessed for 2011. The trend, however is that there will be little to no difference similar to 2009.