Testing Water Consumption by Trees

Introduction

Trees consume a large amount of water and exchange gas into the atmosphere that can help or hurt the environment.

Developing tests to determine the rate of water retention by trees is vital in knowing how certain trees affect a habitat or atmosphere. Each species must be tested to retrieve the most accurate water retention information as possible.

As different tests develop, each test is enhanced by following reviewing the methods used in prior experiments.

Why test for water consumption trees?

In some areas of the United States tree species are being eradicated by certain insects, weather conditions, or nutrient deficiencies. As these species die, another species that is not affected by those certain conditions dominates the area. Knowing the amount of gas released into the air by trees and the amount water they retain, those two species will enable us to know what future trends in water levels and air quality that is affected by their existence.

Knowing how a tree affects the water levels surrounding it will allow for better planning by developers, forest managers, and anyone that is affected by a forest area. Common knowledge developed in this area of study will greatly benefit the growing society.

As different tests develop, methods of testing trees are altered after reviewing past research. While tests for tree water retention continues, methods used for certain species will expand and allow for more precise evidence in future experiments. While these tests make more breakthroughs on how trees affect the atmosphere, society will have a better idea of what the environment will be like throughout different seasons.

What kinds of tests for water consumption by trees have been developed?

Using a model tree to compare water retention rates to a similar subject in nature, has been effective in explaining why the tree produces at certain levels.

Comparing water consumption between forests that contain different species shows the difference in water consumption and gas exchange of each species. This information allows for predictions to be made of atmospheric changes in areas containing those types of species.

Water retention rates for trees and their ecosystems are obtained through formulas specifically designed for the situation of the area being tested, along with the results retrieved from the eddy flux method of determining water precipitation levels.

Different tests use different methods and devices that depend on the type of scenario being tested. As each species has its own specific system and environmental requirements, the proper testing approach and equipment is important to retrieve useful data. A variety of devices are used, but each test has its own formula to determine how much water an individual tree species retains.
What information has been found by testing water use by trees?

- Fruits from mango trees are largely affected by the amount of water retained in their leaves.

- Red-trees that replace eastern hemlocks in the northeastern United States require more water and release more carbon into the environment.

- Testing a group of trees using a model in an ideal-artificial environment provides a foundation of results for comparison with in the species tested.

Conclusion
Tests for determining water use by trees vary and no test is alike. As trees have specific nutrient requirements and different seasonal patterns; no standardized test can be formed to test water retention in every type of tree.

Some methods may be used when testing trees for water use, but each test must be altered to retrieve accurate results. The only similarity in testing tree species for water retention is the devices that are used such as the eddy flux system.

References


