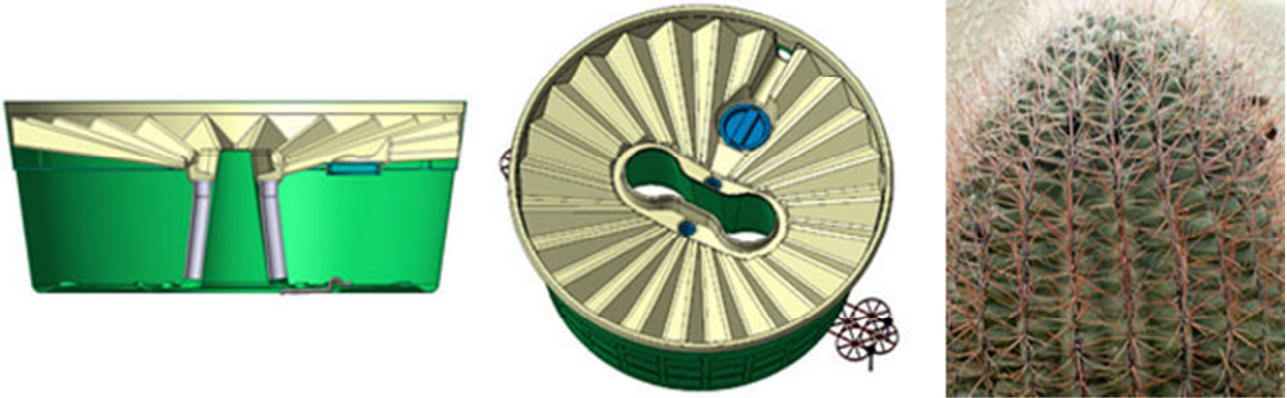


'Water Battery' For Plants Could Bring Forests And Crops To Unlikely Places

BY [THE AUTHOR](#) · APRIL 19, 2010



Everyone knows you can grow things in the desert. In fact, a fair percentage of agriculture in the western part of the U.S. is grown in what are classified as desert environments. But the methodology employed to achieve this seemingly 'unnatural' process is not only deeply flawed, but also excruciatingly inefficient.

The Current Water Costs Of Growing Things Where They Shouldn't Be Growing

Almost all irrigation used to grow any plant life, be it crops, grass, trees, or otherwise, comes from fresh groundwater sources. That's right. In a world where roughly 1 out of every 5 people don't have access to clean drinking water, we in the West are pouring up to 70% of our supply on our lawns and crops grown in regions that would otherwise not support such growth naturally. And though this type of irrigation works, it does so at the cost of efficient use of this precious resource due to the fact that most forms of irrigation lose the majority of their water to evaporation.

While plant selection is important when it comes to choosing appropriate flora for a particular climate zone, it doesn't mean that the only thing that will grow in hot arid environments are cacti. In fact, many different types of plants could grow in places you might not expect as long as they get a helping hand to get started. You see moisture exists; even in deserts. The trick is having a plant with a deep enough root system, and keeping it alive long enough, to reach it.

A 'Water Battery' For Plants

Dutch inventor Pieter Hoff has developed such a 'helping hand' for desert growth of plants in the form of what many have coined as a 'water battery' for trees. After retiring from the the lily and tulip export business in 2003, Mr. Hoff began his own company [AquaPro](#) where he developed the [Groasis Waterboxx](#).

At roughly the size of a tire, the Waterboxx is a polypropylene structure designed to capture and store moisture (in an evaporation-proof chamber) from the air in the form of condensation or rainwater. A 20" diameter hole in the center of the structure allows space for 1-3 seeds or seedlings to grow and provides a microclimate conducive to root development. The Waterboxx collection chamber, which holds approximately 4 gallons of water, slowly delivers water to the plant's root system via a wick located at the bottom of the Waterboxx. The stored water also functions as a temperature regulator for the microclimate within the 20" diameter opening and facilitates the condensation process occurring on the surface of the Waterboxx at night.

From Groasis' website:

The Groasis waterboxx is an 'intelligent water incubator' that produces and captures water from the air through condensation and rain. The condensation is caused by artificial stimulation and the water is captured because of the design of the device, without using energy.

The Groasis waterboxx makes it possible to plant trees or bushes on rocks, on mountains, in gardens, in ashes of recently burned woods, eroded areas or deserts or any other place, without the help of irrigation with a 100% planting result. In moderate climates the Groasis waterboxx causes 15 to 30% faster growth and thus more biomass. The Groasis waterboxx offers the possibility to make more money with trees or bushes through food, fruit, nuts, wood, extracts, medicines, oils and many other economically interesting products.

Building On The Poop Principle

The idea and design of the Waterboxx largely came from poop. Yes; poop. The majority of seeds naturally sown around the world are not done so by simply falling on the ground and sprouting. No, most of what you see swaying in the breeze across the globe is the result of birds. More specifically, a bird's poop and the plant seed contained within it. Nature designs seeds with a protective 'sacrificial coating' to survive their journey through our feathered friends' digestive tracts. When a seed finally is 'dropped' by a bird, it not only is in its ideal germination state, i.e. no protective coating, but it also has its own ideal mini-microclimate of protection, fertilization, and moisture courtesy of the evaporation-proof coating of dried poop on top of it. The latter natural process is what the Waterboxx seeks to emulate (minus the fecal matter).

Does It Work?

As the saying goes, the proof is in the pudding; and the Waterboxx's pudding is looking damn good. From the NY Times:

Mr. Hoff has recently concluded a three-year test of the Groasis Waterboxx in the Sahara desert in Morocco, an area that gets only a few inches of rainfall each year. Almost 90 percent of the trees planted using the Groasis Waterboxx survived after it was removed. A test group of trees planted without the box, but watered once a week, produced the opposite result: only 10 percent survived.

This year, Mr. Hoff said he will be conducting more trials across eight countries and some 25 sites, including California wine country and Joshua Tree National Park. Using a grant from the Dutch government, he has also developed a biopolymer version of the box that will decompose over time, releasing nutrients into the soil as it biodegrades. His long-term business model is to provide a nonexclusive, free license to anyone who wants to manufacture and distribute the Groasis Waterbox, while he plans to ask only for a small royalty per box.



So if you're growing trees in the Sahara, I think your invention is pretty much a success. The applications for the Waterboxx are numerous and the possibility such a device might have in actually changing local climates, soil conditions, rainfall patterns, etc. is extremely hopeful and encouraging.

The Good: A simple 'hands-off' device that utilizes naturally occurring moisture to facilitate the growth of plants in arid environments and encourage deep root system development that will keep the plants alive once the Waterboxx is removed.

The Bad: Large scale testing is just beginning. Only works with plants whose developed root systems are deep enough to reach naturally occurring ground moisture.

The Bottom-Line: The applications for the Groasis Waterboxx are numerous and the possibility such a device might have in actually changing local climates, soil conditions, rainfall patterns, etc. is extremely hopeful and encouraging.