

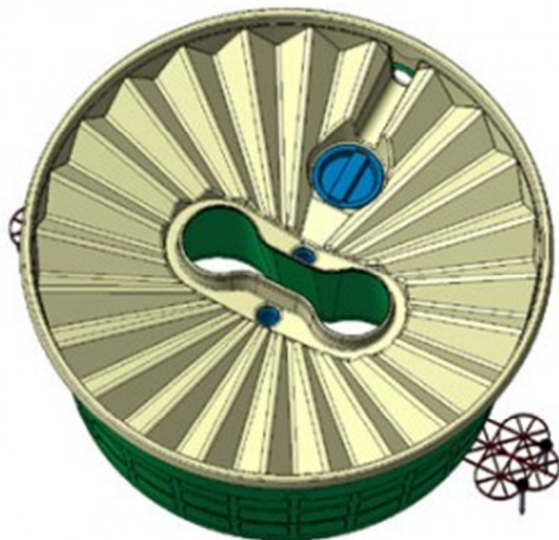
Getting Water to Grow Biofuels

April 15, 2010

Much of the best solar irradiated surface of the planet's land area is very dry or desert. While much of the land has poor soil, adequate water can promote the growth of many food and fuel plants. Irrigation can work where water is flowing or deep ground is available.

Dutch inventor Pieter Hoff believes using groundwater to grow crops and trees doesn't make sense. He is in a major way, right. Traditional irrigation techniques are inefficient because most of the water is lost to evaporation, so Hoff invented a way water can be easily captured from the atmosphere to grow just about anything.

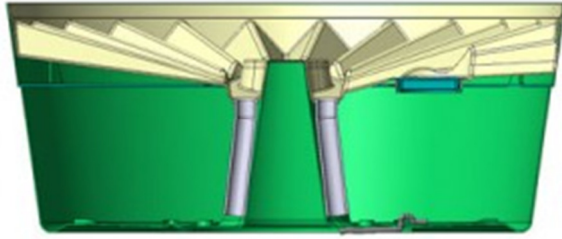
Hoff retired from the lily and tulip export business in 2003 and established his own company [named AquaPro](#). He's applied himself to the development of [the Groasis Waterboxx](#), (from 'grow oasis' one expects) which he says will grow food crops and trees even in the driest places on earth. Think tree fruits, bush fruit and vegetables plus fuel crops.



Groasis Waterbox Overhead View with Wind Anchors. Click image for the largest view.

Hoff's Waterboxx is a donut shaped thing made from polypropylene, about the size of a small car tire at 20 inches in diameter and 10 inches high. An opening at the center of the box provides a space for a plant or tree to germinate and grow.

The Waterboxx design captures both rainwater and atmospheric condensation that collects in the chamber underneath the cover and prevents the water from evaporating. A wick from the chamber leads into the ground beneath the box and drips a small amount of water to the plant's root system each day. Once the plant or tree has taken root on its own, reaching a water source sometimes several meters below, the box can be removed and used again to start another plant or tree. The question is can the box support something as water hungry as tomatoes.



Groasis Waterboxx Cutaway View. Click image for the largest view.

Maybe – Hoff has just concluded a three-year test of the Groasis Waterboxx out in the Sahara desert of 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. Of the test group of trees planted without the box and watered once a week produced the opposite result – only 10 percent survived. This is looking very good now.

For this year Hoff will be conducting more trials across eight countries and some 25 sites, including California wine country and the Joshua Tree National Park.



Groasis Waterboxx - Pieter Hoff with Governor Schwarzenegger. Click image for the largest view.

Add to that the Dutch government has provided a grant for developing 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 Waterboxx. Hoff plans to ask only for a small royalty per box.

Hoff is a proponent of common sense ideas. Hoff says, "My ideal is that the device is available to everybody, everywhere and my focus is to create a business model that enables the world's poor to buy the box." He is talking to a Dutch bank about [setting up a micro-finance scheme to enable farmers in developing countries to buy the Waterboxx.](#)

Hoff has an astute observation – “If we were able to plant two billion hectares with trees we could solve many of the world’s problems,” he said. “We have cut down about two billion hectares of trees in the last 2000 years. So if it’s small enough to cut it, it’s small enough to replant it again if we want.” Mr. Hoff said he believed [his invention could promote reforestation on a large scale](#) to address other global problems like hunger, erosion and climate change caused by global warming.

This writer can get pretty enthused about carbon recovery for food and fuel products, reforestation for erosion control and particularly a moving of forests to more arid areas and more food production in appropriate old forest areas.

It’s a certainty that getting production technology to the worlds poorest is worthy work – quality food, more self-sustaining production that might generate cash income will benefit everyone on earth. At only € 2 each in the smallest quantity plus shipping this has to go well. One more point. Hoff’s web pages are a wealth of practical tree cultivation common sense.