

Getting Water Supplies from Thin Air

By Napa (CA) Mayor Jill Techel

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Napa (CA) is the major city in America's premier wine country, about an hour north of San Francisco, on 17.8 square miles of land with a population of 72,585. Napa has a Mediterranean-like climate, and like most western US cities, has low precipitation levels and is subject to drought cycles that make it difficult to plan for the provision of water supplies.

Agriculture is the key to the success of Napa Valley and the cities in Napa County. We created countywide principles that we could all agree on and foremost is the Preservation of Agriculture. We understand that water resources are important to agriculture, so much so that the cities in the Valley do not use ground water for municipal water supplies.

I recently participated in a groundbreaking ceremony at the Robert Mondavi Winery where a new water technology was introduced that provides water out of thin air. This new technology moves us toward city sustainability in a new way. It's called the "Groasis Waterboxx." Invented by Pieter Hoff of the Netherlands, it is being used for multiple purposes all over the globe.

It is a simple, yet elegant, technology that is very inexpensive. The Waterboxx is about the size and shape of a tire. It has a concave cylinder cover that is situated over a container, (roughly 20 inches in diameter and ten inches in height). There is a hole in the middle, and the Waterboxx is placed over a sapling. The top cover gathers rain and condensation from the atmosphere and stores it in the lower container. The container slowly drips the contained water under the sapling to supply moisture for root development.

The container holds four gallons of water that is made up of rainwater or condensation collected at night when the cover cools more rapidly than the container. The concave design of the cover allows the condensation to run into the container. During the daytime the cover prevents evaporation, and the cover and container protect the sapling from intense heat, and creating a conducive growing environment. A trickling wick is inserted in the bottom of the container to allow water to drip into the soil under the sapling to promote root growth. As a result, other than filling the container at planting, the Waterboxx is self-sufficient and relies solely on atmospheric water in the form of condensation and rain. And because no external energy supply is required, this approach breaks the chain of providing water supply by using carbon-producing energy. (The technology and how it operates can be found on <http://groasis.com>).

This new approach to water supply is important for the Napa Valley. The Robert Mondavi vineyard is dry farmed, and does not employ an irrigation system. Dry farming works well for the older vines, but new vine plantings do need an external water source to start. Using the Waterboxx, Mondavi is planting three acres of new vines. The Waterboxx will cover each new vine, and it will get the water it needs from either rain or condensation. After one year the plants will be strong enough to grow on their own and the Groasis Waterboxx can be easily removed at any time and reused for the other plantings. This technology can work for cities in areas where new plantings are desired, but irrigation is not available to get the new plants started.

This is a shining example of low-impact development for sustainable cities. Groasis, the manufacturer of the Waterboxx, is involved with many demonstrations and experiments worldwide. The technology has applications that address reforestation, water conservation and food production. In the Napa Valley, the technology promises to provide multiple public benefits to our water supply, local economic activity, and low impact development.