

# Using Nature to clean up pollution: Ecologically smart and economical

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## Lloyd Rozema, president of Aqua Treatment Technologies.

Susan O'Dell was tired of flushing her money down the toilet. The rolling landscape of O'Dells' escarpment winery in Beamsville, EastDell Estates, was perfect for growing grapes and tourist interest. But for an industry far from municipal sewer hookups, a rolling landscape doesn't lend itself to traditional waste management.

"We don't have a lot of flat land and a mile-wide septic bed didn't seem like the best use for valuable real estate." said O'Dell. As a result, EastDell Estates' only option was to spend thousands of dollars trucking its sewage and winery washwater to treatment plants.

"It wasn't an economically smart way to do things," she said. "We were looking for an intelligent way to manage our waste." To solve the problem, O'Dell tried a new twist on an old technology: treating her waste water in a constructed wetland. The experiment was a success, said Lloyd Rozema, president of AQUA Treatment Technologies - and that success has other wineries lining up to try out the technology.

The idea of using wetlands to treat polluted water is not new, even in Canada's colder weather climate. But Rozema said as the technology improves, the benefit of using nature to clean up pollution is becoming attractive to both government officials and business owners.

At EastDell Estates, Rozema's St.Catharines company installed a 'Vertical Flow' Wetland.

### How it works is simple:

Wastewater from a regular septic tank is pumped into a series of three, one-metre-deep 'cells' filled with layers of sand, gravel and cattails. The water percolates down through the root systems and gravel of each cell, allowing microbes to deal with excess nutrients and unfriendly bacteria. The end result of the process is water that is consistently cleaner than required by the province, said Rozema - and much cleaner than water coming out of traditional septic tile beds.

A tile bed is a system that diffuses wastewater into the surrounding environment through a system of perforated pipes and gravel. Most rural wineries use this system.

Rozema touts wetlands as the more environmentally-friendly option and he believes wetland economics will attract even more attention from wineries.

For EastDell Estates, which has to truck in all its drinking water, the benefits are clear as water. The cost of the wetland was in the same range as a tile bed - between \$75,000 and \$100,000. But O'Dell said that by using the wetland, the winery reclaims up to 40 percent of its water, which is then used for flushing restaurant toilets and urinals.

As a result, she is saving \$2,000 - \$3,000 a year on her water bill. The winery is also waiting on Ministry of Environment approval to use the wetland to treat winemaking wash water. Simply by not having to truck the diluted grape juice away to the nearest treatment plant, O'Dell estimates she'll save \$6,000 annually. It also saves valuable space, according to Allan Schmidt, General Manger of Vineland Estates Winery.