

USE OF RECLAIMED WATER TO OFFSET FERTILIZER APPLICATION: A COST-EFFECTIVE POLLUTION PREVENTION MANAGEMENT PRACTICE?

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Attempts to limit increasing withdrawals of high-quality groundwater and efforts to reduce point source discharges of wastewater to waterbodies have led to the greater use of treated wastewater for irrigation. Reclaimed water receives disinfection but remains enriched with nitrogen and phosphorus. Removing point source wastewater effluent discharges to waterbodies has been responsible for substantial nutrient load reductions and concomitant improvements in water quality. However, irrigation with reclaimed water has increased nutrient inputs to other areas of the landscape. While reuse has offset potable water demand, the delivered nutrient load has rarely been quantified or reported, thus fertilizer applications have not been reduced to account for these nitrogen and phosphorus inputs. Thus, many locations receive uncoordinated nutrient loads from both reclaimed water and fertilizer. In a homeowner survey within the Wekiva springshed, reuse customers were found to fertilize their lawns more frequently than residents irrigating with potable water.

As pollution prevention is considered more cost-effective than pollutant removal from the environment, reducing fertilizer inputs of nitrogen and phosphorus in response to the loads delivered via reuse would seem to be reasonable management practice. Wastewater utilities have nutrient concentration and water volume data for their customers. Thus, they have the data needed to determine the monthly nutrient load delivered to their reuse customers. This load can be expressed as fertilizer application recommendations by incorporating each customer's turf area, which can be estimated using parcel data. For watersheds with existing nutrient BMAPs, the implementation of a fertilizer offset program should be a cost-effective better management practice for utilities to implement and earn BMAP credits. Homeowners benefit from reduced fertilizer expense. Optimizing reuse for both a water and nutrient perspective will accomplish two important goals, preserving valuable potable water supplies and reducing nutrient pollution to impaired waterways.

PRESENTER BIO: Dr. Marzolf is the Director of the Division of Water and Land Resources at the SJRWMD where he oversees data collection, land management and ecosystem restoration planning. In this role he works on integrating aquatic and terrestrial restoration and management efforts to meet the District's core missions.