

Is It Working? Lysimeter Monitoring in the Southern Willamette Valley Groundwater Management Area

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Groundwater nitrate contamination affects thousands of households in the southern Willamette Valley and many more across the Pacific Northwest. The southern Willamette Valley Groundwater Management Area (SWV GWMA) was established in 2004 due to nitrate levels in the groundwater exceeding the human health standard of 10 mg nitrate-N L⁻¹. In impacted rural areas, well water concentrations are often above this level but households may be unaware of this contamination, increasing the risk of health problems associated with nitrate consumption. Much of this nitrate comes from agricultural nitrogen use and Confined Animal Feeding Operations, CAFOs, and thus improvements in N management are needed to reduce the leaching to groundwater. Previous work in the Willamette Valley by researchers at Oregon State University determined the importance of cover crops and irrigation practices in reducing nitrogen (N) leaching. We are re-sampling many of the same fields studied by OSU to examine the influence of current crops and nutrient management on nitrate leaching below the rooting zone. This study represents crops currently grown in the GWMA and includes five grass fields, three vegetable fields, and one each of mint, hazelnuts, blueberries and wheat. New nutrient management practices include slow release fertilizers and precision agriculture approaches in some of the fields. This work will examine the nitrogen balances and rate of N leaching at the field level from the 1990's to the present. The goal of this project is to provide information and tools that will help farmers, managers and conservation groups quantify the water quality benefits of management practices they are conducting or funding. In addition, the data from this study will be incorporated into the USDA-APEX model to help inform the development of a nutrient water quality trading framework in the GWMA.

Meeting: Groundwater Protection Council, Water Quality Track – Nutrients, Pesticides and Other Contaminants in Groundwater

Location: Washington State Convention Center, Seattle, Washington

Date: October 5-8, 2014