

Is it working?

A look at the changing nutrient practices in the Southern Willamette Valley's 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. Much of the nitrogen inputs to the GWMA comes from agricultural nitrogen use, and thus efforts to reduce N inputs to groundwater are focused upon improving N management. Previous work in the 1990s in the Willamette Valley by researchers at Oregon State University determined the importance of cover crops and irrigation practices and made recommendations to the local farm community for reducing nitrogen (N) leaching. We are currently re-sampling many of the same fields studied by OSU to examine the influence of current crops and nutrient management practices on nitrate leaching below the rooting zone. This study represents important crops currently grown in the GWMA and includes four grass fields, three vegetable row-crop fields, two peppermint and wheat fields, and one each of hazelnuts and blueberries. New nutrient management practices include slow release fertilizers and precision agriculture approaches in some of the fields. Results from the first year of sampling in 2014 show nitrate leaching is lower in some crops like row crops grown for seed and higher in others like perennial rye grass seed when compared to the 1990s data. We will use field-level N input-output balances in order to determine the N use efficiency and compare this across crops and over time. 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.

Potential venues for this abstract:

Benton Soil & Water Conservation District website blog

Benton County Farm Bureau Newsletter

Southern Willamette Valley Groundwater Management Area Website