

Drinking Water from a Household Well

Issues you may have not considered

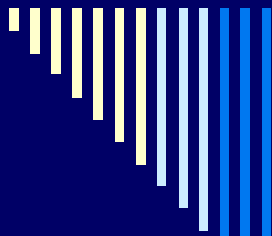
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Where I'm coming from.....

- ❑ Oregon State University Extension Service Well Water Program
 - ❑ Roots in Farm*A*Syst/Home*A*Syst
 - ❑ Background in Environmental Science Education (not technical)
 - ❑ Generalist—Science, policy, outreach
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WellWater.oregonstate.edu

Address  http://wellwater.oregonstate.edu/

The Oregon Well Water Program



Protecting the groundwater

that provides our drinking water

through education.

A Home*A*Syst/Farm*A*Syst Program

**Problems with your well or septic systems related to heavy rains or flooding?
See links on the [BACTERIA](#) page.**

The goal of the Home*A*Syst Well Water Program is to help Oregonians protect the groundwater that supplies drinking water through education. The program coordinator is based in Corvallis at [Oregon State University](#) and conducts projects throughout the state. Most of the information available at [Well Water events](#) is now available on this web page.

- Home
- Wells
- Water Tests
- Water Treatment
- Limited Water
- Bacteria
- Arsenic
- Septic Systems
- Real Estate Sale
- Lawn & Garden
- Hazardous Waste
- Home-A-Syst
- Landscape
- Pesticides
- Fuel Tanks
- Events
- Misc. Issues
- Contact Us
- County Offices
- Internet Links

Well Water Training





Classes

- Rural Living Basics: Wells & Septic Tanks
 - About 500 per year, 8 – 10 counties
 - Master Gardeners
 - 12 counties – not every year -- >2000 total
 - Pesticide Applicators
 - 2-5 locations/year, in 2005 ~ 500 applicator
 - University Classes
 - Environmental Health
 - Water Resources
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Agency work

- WRD -- Well Rules
 - DEQ -- Septic Rules
 - DHS -- Drinking Water Protection Plans
 - DEQ – Landfills & fuel tanks
 - County Health Departments,
 - Planning & Development Departments
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“GO TO” for private wells

- Flattering if not so sad....
 - Not funded to.....
 - Pass the buck
 - NOT COORDINATED
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Water Resource Agency Issues

- Pollution prevention
 - Water use permit or Water Right
(in some areas)
 - Proper well construction
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Health Agency Issues

- Coliform test results need to be “absent”
 - Nitrate test need to meet 10 mg/l standard
 - Arsenic test results (in some locales)
 - Other test results such as pH, TDS, etc.
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Well Owner Concern...

- What's the best kind of water treatment for well water?

 - I think my water has pesticides, mercury, lead, chloroform, etc.
 - How do I test?
 - Who will test for free?
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Well Owner Concerns....

- How do I get rid of the bad taste?
 - How do I clean the stain on my tub?
 - “My well water is making me sick,”
what should I do?
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Extension-centric issues

(Bridge Agency and Resident issues)

- Facilitate assessment of health risks
 - Identify appropriate water tests based on individual situations
 - Evaluate water treatment options
 - Promote decision-making based on understanding of wells & groundwater
 - Identify common barriers to pollution prevention recommendations
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Big-picture issues

- Is an annual coliform test adequate and necessary to indicate well water safety?
 - Is the MCL of 10 mg/l of nitrate meaningful for household wells?
 - What about other contaminants?
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Tougher Big Picture Issues

- Who provides technical assistance to owners of individual household wells?
 - Is there gap in the level of public services related to safe drinking water between rural and urban residents?
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The Coliform Issue

- Public health agencies
 - No coliform = safe drinking water
 - Test once a year and treat = safe drinking water
 - Water Resource / Environmental agencies
 - Coliform = aquifer contamination
 - Repair well or drill new = aquifer protection
 - Residents
 - Not sick = safe drinking water
 - Positive coliform test = expense
 - Well water test = unnecessary expense, so don't bother
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Resident's Responses to Coliform in Well Water

- Shock chlorinate well (not always followed by additional testing)
 - Install water treatment system
 - Chlorination
 - UV
 - Ozone
 - Drill new well (less frequently than treatment)
 - Use bottled or hauled water
 - Do nothing
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Coliform vs. *E. coli* (fecal coliform)

- How to interpret absence of *E. coli* (fecals)
 - Is water less contaminated?
 - Is water at lower **risk** of contamination?
 - What about manure management
 - If you can eliminate *E. coli* from well water with management changes, is the water any “better” or acceptable for use if it still has total coliform?
 - If you can treat the water to get rid of *E. coli*, why bother with management changes?
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Nitrate & Health Effects

- Conflicting or inconclusive results
 - Reproductive outcomes
 - Diabetes
 - Various cancers
 - Methemoglobinemia

What level is SAFE???



Testing Recommendations

**Test for bacteria & nitrate
once a year or more often
if you notice a change in
your water**



How many test their wells?

1990 Census data for Oregon counties

	Benton	Linn	Lane	Marion
Drilled Well	5686	13666	20417	16283
Dug Well	236	675	980	877
TOTAL	58,814			



Testing reported

- Five labs in the area
 - ~1500 / year
 - 80 - 100 month ~ 1200 / year
 - ~ 900 / year
 - ~ 2000 / year
 - 30 – 50 / month ~ 600 / year
 - TOTAL ~ **6200** (**~10%**)
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Solutions?

- Acknowledge that recommendations aren't being followed?
 - Coordinate message within a state and nationally?
 - Funding equity for rural and urban safe drinking water?
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Who takes the lead?

- Extension?
 - EPA?
 - Non-profit?
 - Industry?
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