

# Gray Water to Green Trees

Mid term Report  
San Bernardino Valley College  
Science Division  
May 26, 2009

# Objective

- To investigate the effect of gray water on the development of edible plants



# Multidisciplinary Approach

- Water Supply Technology
- Biology
- Chemistry

# Methods

- Three laundry detergents were selected
- Red radish plants were grown from seed using detergents and control
- Water and soil extracts examined chemically
- Root mass, leaf length, and stem length measured after 6 weeks

# Biology Results

- Significant difference above ground
  - Stem length and leaf length different compared to control
- Subtle difference in root mass
  - Further research needed

# Chemistry Preliminary Results

Analyte	Method	Range (ppm)		
		Water	Soil Extract (DI water)	City of S.B.* (2007)
nitrate	ion-selective electrode	26.5 – 43.5	42.0 – 45.4	2.1 – 43.0
phosphate	absorbance	0.26 – 0.92	1.93 – 2.43	not reported
calcium carbonate (hardness)	titration	166 – 234	25 – 34	120 – 320

\*<http://www.ci.san-bernardino.ca.us/civica/filebank/blobdload.asp?BlobID=5790>

# Next Steps

- Water Supply Technology students will experiment with possible delivery methods
- Biology
  - Actual grey water will be used
  - A different plant will be used appropriate for the season
  - Bacterial assays to compare gray water vs. control
- Chemistry
  - New instrumentation will provide more precise measurements
  - Analysis will be repeated