Nutrients – A Watershed Perspective

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Washington State Department of Ecology Nutrient Forum – June 4, 2019



working together for better ground since 1941

528 91st Ave NE, Ste A, Lake Stevens, WA 98258-2538 425-335-5634 www.snohomishcd.org

"Local Solutions to Local Problems"

A Little Background



Photo source: http://www.nrcs.usda.gov/about/history/

Dust Bowl of 1930s

- Drought in the Great Plains = Dust Storms
- Conservation Districts formed
- Local, subdivision of state government, under Washington State Conservation Commission
- Work closely with U.S. Dept. of Ag
 Natural Resource Conservation
 Service
- Celebrating 78 years of service in Snohomish County



District Summary

- Locally led conservation
- Local, State and Federal Partnerships
- Serving Snohomish County & Camano Island
- Working with landowners on a voluntary, non-regulatory basis, to preserve natural resources and improve water quality.



Snohomish Conservation District

working together for better ground since 1941

Connecting with Land Managers

- Education and Outreach
- Workshops, Fairs and Festivals
- Presence in the Field
- Personal (Agricultural) Staff Experience
- Meeting landowner goals





Snohomish CD Nutrient Programs

Programs

- Farm Planning
- Soil Health
- Stormwater Solutions
- Youth Education
- Habitat Restoration





Snohomish CD Projects

(Relating to Nutrients)

Projects

- Janicki Advanced Distillation and Nutrient Separation (ADNS)
- Manure Storage
- Nutrient Management
 - > Soil Testing
 - Manure Spreader Program
 - Nutrient Mgmt. Planning



Nutrients/SCD Farm Planning & Projects

Our Local CIG Project - Demonstration of Advanced Distillation Treatment Technology for Dairy Wastewater

- Stillaguamish Tribe of Indians / Demonstration of an Innovative Distillation and Nutrient Separation Processor for Dairy Wastewater
- Partners: Janicki Bioenergy, Natural Milk Dairy, Snohomish Conservation District, WSU
- Partners will demonstrate and evaluate a Vapor Recompression Distillation (VRD) processor for the whole treatment of dairy manure.
- The VRD processor will convert manure wastewater in real time into distilled recycled water, concentrated liquid ammonia, and a pathogen-free, dry, organic fertilizer or nutrient product.

Manure Storage (Beef Cattle) Bedded Pack Barn

BEFORE

- Uncovered winter confinement area
- Nutrient runoff to nearby surface waters a problem
- Livestock health and comfort issues

- Runoff from area has been eliminated \geq
- Cow comfort and herd health greatly improved \geq
- Compost provides a more stable product for \geq field application during the growing season





Horse Manure Storage

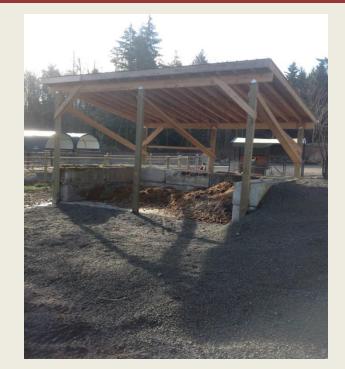
Before –

- Horse manure out in the elements
- Nutrient runoff from this area contributing to surface waters down slope



After –

- Covered manure bin that keeps manure dry minimizing runoff
- Chore efficiency improved
- Composted manure more stable to apply during the growing season



Horse Manure Storage

Before

After





Soil Health Program Fall Seeded Cover Crops

- Cover Crop Why Bother?
 - Reduce Erosion to Surface Waters
 - Maintain/Increase Organic Matter
 - Plant Uptake of Nutrients
 - Reduction of NO₃ in Ground and Surface Water
 - No bare ground going into rainy season



Soil Health Program Cost Share

 RCPP/EQIP Fall Planted Cover Crops
 Seed Purchase Reimbursement Program

Fall Seeded Cover Crop





Fava Bean Ryegrass Mix

Perennial Rye, Vetch and Triticale

Stormwater Runoff

(Our Largest Rain Garden to Date)

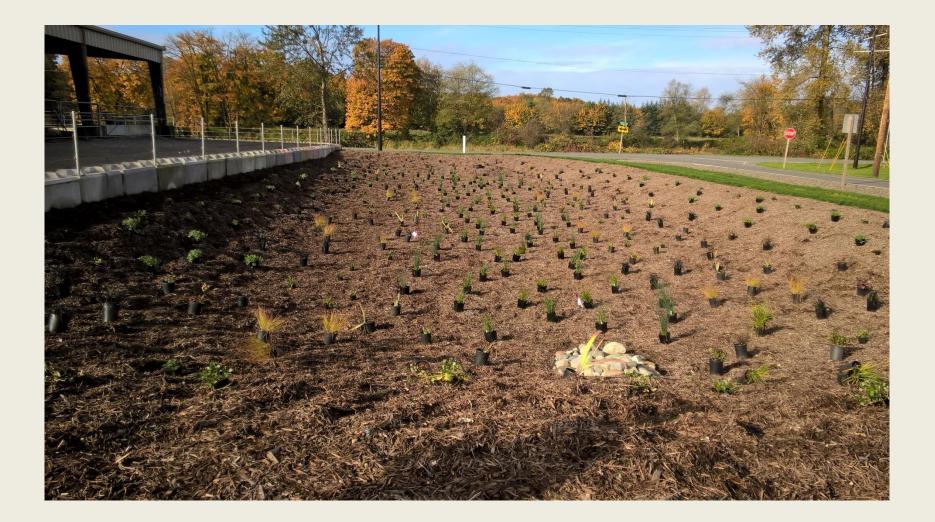
- Qualco Dairy
- > Total area is 10,000 sf.
- Runoff flows in from impervious areas
- Capacity is 120,000 gallons
- The treatment capacity of 5,500 gallons per hour



Qualco cont'd



Qualco cont'd



Why is Nutrient Management Important?

Nitrogen supports our food future

Support farmers bottom line

Agronomic use/balance supports water quality

Puget Sound doesn't need any extra nutrients



Funding

Existing Sources

Washington State Conservation Commission

Snohomish County Rates and Charges

➤Limited amount

>NRCS EQIP (Larger Scale Projects)

Department of Ecology- Watershed Scale

Difficult to Implement – Tied to Buffer Requirements

Time For Questions



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