Berry Land Management Practices for Soil and Water Quality

Matthew Arrington*
Small Fruit Conference
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*PhD Candidate and WCD Intern · Whatcom Conservation District, 6975 Hannegan Rd, Lynden, WA 98264 · (360) 526-2381
Whatcom Conservation District

• WCD’s mission is to assist land managers with their conservation choices.

• Since 1946, we have worked with landowners and farmers to manage natural resources in Whatcom County.

• The WCD has a wealth of information concerning water quality issues, management of small and large farming operations, and implementation of best management practices (BMPs).
Importance of water quality

• Recreational use
• Aquatic habitat and fish
• Shellfish industry
• Marine life

Photo credit: feed14million.com, bigtacklebox.blogspot.com, king5news.com
Water Quality Concerns

- **Pathogen** - Fecal coliform bacteria in watershed is of primary concern.
- **Nutrient** - Run-off and leaching of fertilizer materials
- **Sediment** - Erosion, drainage and water clarity
- **Sprays** - Managing drift, run-off and collateral exposure
Pathogen: Fecal Coliform in Waterways

Manure Use
- Timing
- Location
- Incorporation

Compromised Septic
- Use of RV’s and portable toilets
- Temporary housing

Seasonal flooding

Photo credit: wa.gov
Managing Nutrients

Application:

- Timing
- Rates
- Placement
Fertilizer Timing

Keys to efficient fertilizer timing

• Match application to peak demand of the plant
• Observe local weather forecast and plan product application accordingly
• For blueberries, manure is not recommended before planting but digested solids can be used as a topdressing or mulch
• For fall fruiting berries, composted manure can be applied to the soil in spring

Photo credit: extension.org, fallcreeknursery.com
Rate

• Applying more fertilizer than recommended doesn’t ensure increased yield or lead to better uptake
• Excess increases both the cost and potential contamination of water supplies
• Excessive nitrogen application increases the potential for nitrate leaching
• Excessive phosphorus can lead to a buildup of P in the soil and increased losses due to run-off when soil erosion is not minimized
Placement

The applied nutrient, crop type, soil conditions and tillage systems impact the placement of nutrients. A few placement methods include:

- Broadcast
- Banding
- Fertigation
- Point injection
- Manure solids as mulch
Sediment Pollution

• Preventing erosion
• Excess sediment from erosion can backfill salmon spawning areas
• Turbidity can negatively effect water plants as well as wildlife

Photo credit: danhellar.com, wunderground.com
Spray Applications

Effective Application of Nutrients and Pesticides and Herbicides

• Adherence to the product label
• Attention to weather conditions
• Time of day (pollinator health)
• Setbacks and spay buffers/screens

Photo credit: cornandsoybeandigest.com, newgarden.org
Land Management Practices

Sediment, Buffer Zones, Wetlands, Pollinator Habitat, Row Crops and Soil Quality
Minimizing Sediment Pollution

• Maintaining water flow
• In-stream sediment screens
• Maintaining field cover
• Vegetative buffers and filter strips
Buffer Zones

Setting up and maintaining buffer zones

• Riparian buffer zones are areas of trees and shrubs located adjacent to streams, ponds, and wetlands

• Vegetative buffers act as bio filters, they absorb nutrient and chemical run-off
Wetlands

Land that is either permanently or seasonally saturated with water, providing a unique ecosystem for plants and animals.

- Wetlands act as a bio-filter improving downstream water quality
- Seasonal flood protection
- Multiple federal agencies including EPA, FWS and USDA regulate wetland management
- The WCD can help in assessing possible areas of wetland and in wetland restoration

Photo credit: cornandsoybeandigest.com, newgarden.org
Pollinator and Beneficial Insect Habitats

• Native pollinators can increase fruit set and reduce commercial pollinator demands

• Habitat strips may improve native pollinator populations

• Habitat strips may also increase populations of predatory insects and aid in the management of insect pests

Photo credit: cornandsoybeandigest.com, newgarden.org
Cover and In-Row Crops

Crops planted to manage soil erosion, soil fertility, soil quality, water, weeds, pests and diseases.

Can be installed both as a pre-plant cover crop or as a permanent alleyway cover.

Cover crops offer:

• Decreased soil compaction
• Increased water infiltration
• Reduced run-off and erosion
• Equipment traction

Photo credit: cornandsoybeandigest.com, newgarden.org
**Storage of Mulches**

- Including: wood chips, sawdust, manure solids, etc.
- Mulch materials should be stored away from irrigation ditches, streams and other waterways
- Long term storage should take into account season flooding and wet season field conditions

Photo credit: cornandsoybeandigest.com, newgarden.org
Reducing Field Compaction

• Why its important?
  • Reducing ponding
  • Run-off
  • Increases water infiltration
  • Soil health

• Cover crops help reduce compaction

• Repeated tillage at the same depth and Rain drop impact and driving on it while wet increases compaction
Outlook

Regulatory

• The Dairy industry saw increased regulation of farm practices starting in 1998 as a result of watershed pollution (potentially originating with dairy's) impacting shellfish beds

• The potential for regulation imposing similar restrictions on nutrient products is likely in the berry production industry.

Industry Outlook

• Forecasting use
Resources Available

• Cost share
  • Hedgerows
  • CREP
  • Land management practices
  • Structures

• Farm planning at WCD
  • Identify resource concerns
  • Suggest corrective measures

• Educational materials
  • Farm Speaker Series (January 11)
  • Factsheets

Whatcom Farm Speaker Series

Land Management for Productive Berries

Thursday January 11, 2017. noon-1:30 p.m.
Lynden Fairgrounds, People's Place

Speaker Matt Arrington, Berry Outreach Project Coordinator, Whatcom Conservation District, and a panel of your farming peers.

Berry land management practices & tools, presentation of new outreach materials, most current research and trials.
Thank you!

For more info, go to:
www.whatcomcd.org/berry-farm
or call (360) 526-2381