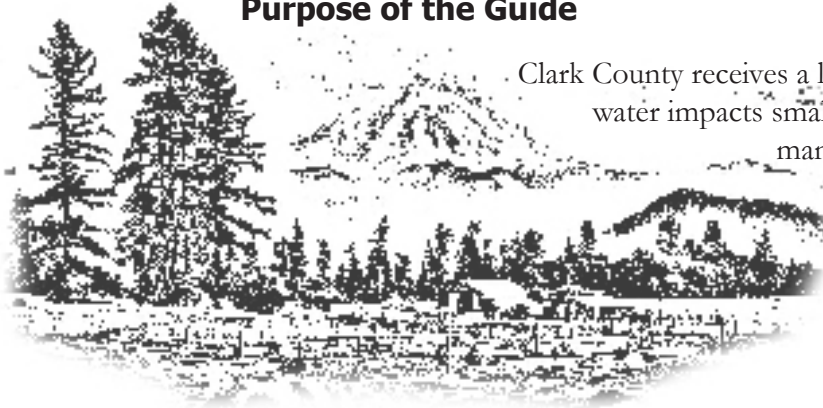


Water Quality Self Assessment Guide for Small Acreages

Purpose of the Guide



Clark County receives a lot of rain throughout the year and all that water impacts small acreage properties. How landowners manage rain and stormwater runoff affects the health and enjoyment of their land, their neighbors land, as well as streams and other waterbodies. Proper land, animal, and water management often saves time and money while improving your property, increasing its value, and protecting our valuable natural resources.

This publication helps you assess your land management techniques to identify areas you can improve by implementing some common management practices, referred to as Best Management Practices (BMP's), which you can utilize to reduce the impact of stormwater to your property. This publication also provides resources and contacts for obtaining further information on implementing BMP's on your property. Funding may be available from your local Natural Resources Conservation Service office or the Clark Conservation District (<http://clarkcd.org/>).

As Clark County becomes increasingly suburban, implementing BMP's will help maintain good neighbor relations and prevent intervention by regulatory agencies. This guide offers you the opportunity to assess your property and particular situation so you can become more aware of how your management practices affect you and the surrounding area.



How to use this Guide

This self assessment guide identifies common small acreage practices that can impact water quality. For each practice, identify the description which most closely matches your small acreage and check the box next to that description (*check only one box per section*). If the situation does not apply leave the boxes in that section blank. The number beside the box is the score for each practice. At the bottom of each page, write down your total page score. Following each set of descriptions, you will find information on BMP's for that small acreage practice, as well as ideas for creating a plan to adjust your practices to improve your property and reduce your impact on water quality. Once you finish the self-assessment, see page 11 for your total small acreage management rating.



Small Acreage Program

Waterways

If you have a stream, ditch, pond, or wetland on your property there is an associated riparian area. Riparian areas are the transitional area between the water and surrounding land. Vegetation in these areas filters runoff, removing sediment particles, nutrients, fertilizers and other contaminants which are harmful to our recreational enjoyment, as well as to fish and wildlife that rely on good water quality.

Streams and Ditches

Streams are important habitat areas for fish and wildlife and a source of enjoyment as a landowner. Ditches are collection areas for runoff and many were previously streams that have been channelized.

Rating your streams and ditches:

1. (Photo 1) Area adjacent to stream or ditch is completely without vegetation. Livestock have free access to water, with no fencing on either side. Stream or ditch banks are eroded and muddy.

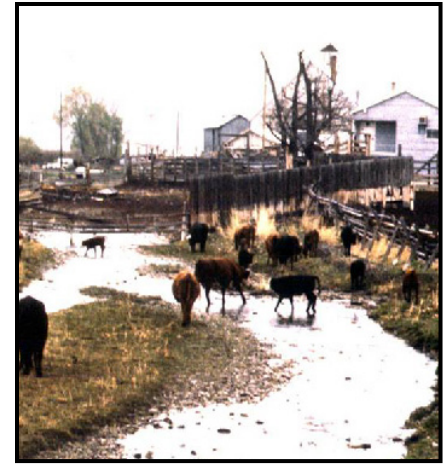


Photo 1

2. (Photo 2) The stream or ditch is partially fenced and livestock have limited access. Some vegetation is present, but mostly non-native weeds such as blackberries or grass. Stream banks are eroding around the area of animal access.



Photo 2

3. (Photo 3) The stream or ditch has mature vegetation, with plants of varying height. Banks show no signs of slumping or erosion. The bank is completely fenced off and livestock have controlled or no access. Off-channel watering is provided if applicable.



Photo 3

_____ Total Page Score

What to do if your situation is similar to either 1 or 2:

- ◆ Limit livestock access to stream with fencing; provide a bridge or other means to allow livestock to cross without walking through water



- ◆ Provide off-channel watering for livestock, if needed, with a pump and tank or nose pump.
- ◆ Remove weed species such as blackberry or knotweed.
- ◆ Plant native plants along water channel to restore vegetation; utilize plants of different heights and growth types to create a diverse habitat.

Small Acreage Program

Wetlands and Grazed Wet Meadows

Many small acreage properties in Clark County have wetlands or wet meadows. Wetlands are areas where water is present on the surface or just under the surface, and may extend over most of a pasture, creating a wet meadow. These areas act as filters, removing contaminants from water that will become ground water or enter streams. They also help recharge groundwater and provide valuable habitat to wildlife. Because wetlands and wet meadows have saturated soils throughout much of the year, they are susceptible to compaction from animals and machinery.

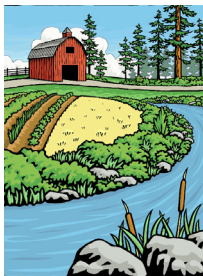
Rating your wetlands and wet meadows:

1. (Photo 4) Livestock have free access to wetlands and wet meadows throughout the year. Manure is left in these areas. Heavy machinery and vehicles are driven over these areas on a frequent basis.
2. (Photo 5) Livestock access is limited during the wettest part of the year. Heavy machinery is kept off during the wet season and manure is harrowed during the dry season.
3. (Photo 6) Animals have no or limited access and graze only during the dry season, when soils are not saturated. Manure is removed from these areas. Heavy machinery does not cross these areas at all.

_____ Total Page Score

What to do if your situation is similar to either 1 or 2:

◆ Limit livestock access to wetlands and wet meadows during the rainy season. Allow grazing only when the ground is firm enough to support their weight. If possible, fence off wetlands to provide year round protection.



Small Acreage Program

◆ Pick up manure or harrow surface to distribute manure and cause it to decompose more quickly.

◆ Keep heavy machinery and vehicles away from wetlands and wet meadows. Utilize plywood to distribute their weight if you need to cross these areas.

Please note that Clark County's Wetlands Protection Ordinance, contained within the Clark County Code, Chapter 40.450, regulates activities within wetlands and areas immediately surrounding wetlands. Call Clark County Community Development at 360-397-2446 before doing any work in or near a wetland.



Photo 4



Photo 5



Photo 6

Animals

Animals are often an important part of small acreage ownership and management. But poorly managed livestock areas can be a source of water pollution as well as the cause of animal disease, increased chore time, soil compaction, mud production, and a displeasing landscape view.

Waste Management

Animal wastes provide a great resource for small acreages as a fertilizer for pastures, landscaping, and gardens. Contaminants, such as the bacteria, phosphorous and nitrogen in manure, can be detrimental to humans, as well as fish and wildlife if allowed to leach into nearby streams, wetlands and ditches, and even your well. Properly managing animal manure is essential to maintain water quality.

Rating your animal waste management:

1. (Photo 7) Animal holding areas are within 100 feet or are located upslope from a drinking water supply such as a well. Manure is piled less than 250 feet from a drinking water supply. Manure is piled uncovered next to a stream or other water body.

2. (Photo 8) Manure is piled, uncovered, more than 100 feet from a stream or other waterbody and is more than 250 feet away from a drinking water source. Livestock holding areas are more than 100 feet from surface water bodies and drinking water sources.

3. (Photo 9) Manure is composted and covered more than 100 feet from all drinking water and surface water sources. Livestock confinement areas are more than 100 feet from water sources and vegetated buffer strips surround these areas.

_____ Total Page Score

What to do if your situation is similar to either 1 or 2:

◆ Collect manure from pens and stalls on a regular basis (every 1 to 3 days) and compost it under cover – either a roof or a tarp.



◆ Keep manure compost piles at least 250 feet from drinking water supplies and surface water such as streams or wetlands.

◆ Keep livestock confinement areas at least 100 feet away from drinking water supplies and surface water.

◆ Utilize grassy or vegetated strips around confinement areas to collect and filter runoff.



Photo 7



Photo 8



Photo 9

Pastures and Grazing Management

Landowners often overlook pasture and grazing management. Bare areas readily turn into mud during the wet season and encourage weeds (some toxic to livestock and humans) to colonize. Allowing animals to continuously graze throughout the year decreases pasture productivity and increases bare areas. A well established pasture provides forage for your animals during the summer months thereby reducing feed costs. A healthy pasture also keeps weeds and mud to a minimum, thus reducing chore time, runoff quantity, and contaminates in the runoff.

Rating your pasture and grazing management:

1. (Photo 10) Animals graze continuously throughout the year. Pastures are in poor condition, grass height is less than 3” and there are large areas of bare soil, mud and/or weeds.



Photo 10

2. (Photo 11) Pastures are subdivided and animals are rotated throughout the year. Pastures are in fair condition, but grass height is less than 3”. Small areas of bare soil and weeds occur throughout the pastures. Animals are allowed to graze when soils are wet and saturated with water.



Photo 11

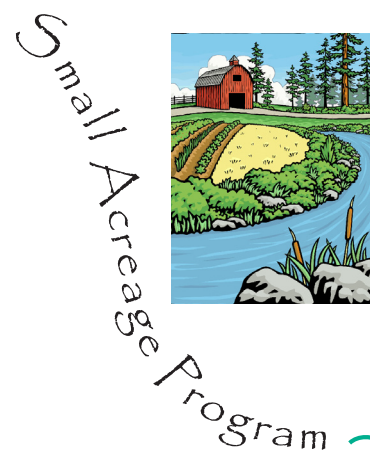
3. (Photo 12) Pastures are subdivided, animals are rotated throughout the grazing season when grass height reaches 3 to 4”, and removed to a sacrifice area when soils are saturated. Pastures are in good condition, with lush grass, few if any, areas of bare soil and few weeds.



Photo 12

_____ Total Page Score

What to do if your situation is similar to either 1 or 2:



◆ Subdivide pastures to create more, smaller pastures. This will force animals to graze the grass more uniformly and reduce the number and size of bare soil areas.

◆ Remove animals from a pasture once grass height reaches 3 to 4” and allow the grass to regrow to a height of 6 to 8”, thus maintaining a strong, healthy grass that is better able to compete with weeds.

◆ Confine animals to a small area during the winter to keep them off saturated soils. Livestock on wet pastures kill grass, compact soils and create mud.

Sacrifice Areas, Turnouts and Paddocks

Utilizing a small enclosure such as a paddock, corral, turnout, or pen during the wet, winter months (November to March) reduces mud and improves your pastures. Thus, a small portion of pasture is sacrificed for the benefit of the remaining pastures.

Rating your sacrifice area:

1. (Photo 13) No sacrifice area or sacrifice area remains muddy throughout the wet season and water flows through it. It is located within 100 feet of drinking water or surface water source. No vegetation surrounds the sacrifice area to filter runoff.



Photo 13

2. (Photo 14) The sacrifice area contains some footing materials, but maintains some mud during the wet season. Small buffer strips surround the area, but buffer grass height is less than 3”.



Photo 14

3. (Photo 15) Sacrifice area has a nice layer of footing material with limited mud. Adequate buffer strips with vegetation or grass 3 to 4” in height surround the sacrifice area, collecting and filtering runoff.



Photo 15

_____ Total Page Score

What to do if your situation is similar to either 1 or 2:

◆ Locate sacrifice areas at least 100 feet from drinking water and surface water sources.



◆ Utilize buffers, swales or berms around your sacrifice area to keep clean runoff from coming in and to filter runoff leaving the area.

◆ Utilize footing materials such as sand, gravel or hogfuel (chipped or shredded bark) to minimize mud in the sacrifice area. Place footing materials to twice the depth of mud: each foot of mud requires two feet of footing material.

◆ Remove manure every 1 to 3 days to keep footing materials from clogging up and maintain filtration capability.

Small Acreage Program

Runoff

Keeping water from ponding around buildings on your property presents a real challenge in the rainy Northwest. Managing roof runoff reduces mud, creates a healthier working and living environment, makes chores easier, and keeps clean water clean.

Rating your runoff management:

1. (Photo 16) Outbuildings have no gutters. Runoff pools around buildings creating mud.

2. (Photo 17) Gutters are present on some buildings but downspouts are absent from many areas. Runoff water is not diverted away from heavy use areas.

3. (Photo 18) Gutters and downspouts function on all buildings and are protected from animal damage. Water is diverted around heavy use areas and diverted on the property where it will infiltrate into the ground, keeping it clean.

_____ Total Page Score

What to do if your situation is similar to either 1 or 2:

- ◆ Install gutters and downspouts on all outbuildings
- ◆ Protect downspouts from livestock damage by encasing in plastic pipe or limiting access with fencing.



◆ Divert roof runoff away from heavily used areas to keep water clean.

◆ Outlet roof runoff to an area on your property where it can infiltrate into the soil and will not be contaminated by manure or sediment. French drains, underground outlets, or vegetated swales can all provide a way to divert roof runoff away from buildings and heavy use areas. Rain gardens, rain barrels, or stock water tanks can all receive clean roof runoff.



Photo 16



Photo 17



Photo 18

Well and Septic Maintenance

Septic system and wellhead maintenance protect your family's health and the value of your small acreage. Maintaining a safe, quality drinking water supply and a working waste treatment system saves time and money.

Wells

The location and condition of your well and the activities around your well head affect the quality of your drinking water. Contaminants affect the appearance and taste of your water and may be extremely harmful or possibly fatal. Potential pollutant sources include fertilizers, pesticides, and manure.

Rating your well:

1. (Photo 19) Well is located within 100 feet of manure storage or livestock confinement area or less than 50 feet from your septic system. Chemicals and fertilizers are stored near the well head. Well water has never been tested for quality. Well casing and seal have not been inspected for cracks or holes. A depression around the well casing allows ponding of surface water.
2. (Photo 20) It has been more than a year since the well casing and seal were inspected for cracks or holes. Well water has not been tested for quality in the last four years. Old insulation or other material is present around the wellhead (encourages rodents).
3. (Photo 21) Well is located more than 100 feet from manure storage or livestock confinement area and 50 feet from septic system. Chemicals and fertilizers are stored away from well head. Well casing is in good condition and has been inspected annually for cracks or holes. Well water is tested every three to four years.

_____ Total Page Score

What to do if your situation is similar to either 1 or 2:

◆ Locate confinement areas and manure storage at least 100 feet from drinking water and surface water sources. Keep wells 50 feet from septic systems.

- ◆ Do not store chemicals or fertilizers near the well head. Use foam type insulation (e.g., "peanuts") around the well, and keep well sealed against rodents.
- ◆ Test your water every three to four years to ensure good water quality.
- ◆ Inspect your well casing every year for cracks or holes. Repair any damage immediately.
- ◆ Be sure you well is properly sealed with an impervious material and is above ground level. Depressions around your well increase the risk of contamination from surface water runoff.



Photo 19



Photo 20



Photo 21



Septic Systems

Well designed, properly installed, and regularly maintained septic systems last for many years. Your septic system represents a substantial investment and protecting it from damage can save time and money. Improper (or lack of) maintenance and physical damage are the two main causes of a failing septic system. It is the landowner's responsibility to see that their system is properly maintained through regular inspection and pumping. Regular inspection of the septic tank is the most important maintenance a homeowner can perform.

Rating your septic system maintenance:

1. Septic tank and drainfield location are unknown. It is unknown when system was last inspected or pumped. Grease, oil and leftover household chemicals are dumped down the drain.
2. Location of septic tank is known, but drainfield is unknown. More than 4 years have passed since the tank was inspected and pumped. Household chemicals and other hazardous wastes are dumped down the drain infrequently.

3. (Photo 22) Location of septic tank and drainfield is known. Vehicles and livestock are kept off the drainfield and system at all times. System has been inspected in the past 4 years and is regularly pumped. Household chemicals and other hazardous wastes are disposed of properly, not dumped into the system.

_____ Total Page Score



Photo 22

What to do if your situation is similar to either 1 or 2:

- ◆ Know the location of all components of your septic system: the drainfield, septic tank and reserve area. The Clark County Health Department has records for most systems.
- ◆ Keep livestock, vehicles and heavy equipment off your septic tank and drainfield.
- ◆ Have your septic system inspected every four years and pumped if necessary.
- ◆ Maintain at least 50 feet between wells and your septic system.



Small Acreage Program

Fertilizer and Pesticide Use

While fertilizers and pesticides present helpful tools for managing your small acreage property, utilizing them properly benefits your wallet and protects water quality.

Rate your fertilizer and pesticide use:

1. (Photo 23) Regular fertilization application occurs without consideration as to time of year, weather, or the results of a soil test. Pesticides are applied regularly without consideration for weed species, weather, or time of year. Distance to water bodies is not a factor in application decisions.

2. (Photo 24) Fertilizers are applied based on observation of previous results and when plants are thought to need the nutrients. Pesticides applied consistently and selectively based on weed species and time of year.

3. (Photo 25) Fertilizer applied according to recommendations from a soil test and soil nutrient levels are known. Fertilizers are applied during the growing season in several small bursts when plants can most utilize the nutrients. Pesticides are used selectively based on specific species and application is timed to have the greatest effect on the target species. Alternative methods of pest management are utilized if appropriate.

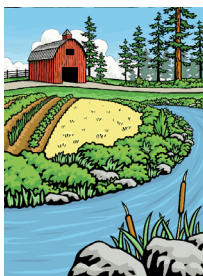
_____ Total Page Score

What to do if your situation is similar to either 1 or 2:

◆ Test the fertility of your soils and apply fertilizers based on recommendations from the lab.

◆ Apply fertilizers during the growing season when plants can readily utilize the nutrients.

◆ Select pest control methods based on the species and time of year. Utilize other methods such as biological, physical or mechanical control to manage weeds and pests, if available and appropriate.



Small Acreage Program



CSUCE

Photo 23



NRCS

Photo 24



UNCE

Photo 25

Determining your management score

1. Add sub-totals from the bottom of each page:

Page 2 _____

Page 3 _____

Page 4 _____

Page 5 _____

Page 6 _____

Page 7 _____

Page 8 _____

Page 9 _____

Page 10 _____

Total Score: _____ (Maximum of 27)

2. Count the total number of situations that applied to your farm

Total Situations: _____ (Maximum of 9)

3. Divide #1 by #2:

Management Score = Total Score ÷ Total Situations

Your Management Score = _____



Turnouts with a grassy buffer strip allow runoff to be filtered before it enters a nearby stream.

Ranking:

_____ 2.5 to 3.0 points – Excellent, you are doing a good job managing your property and protecting water quality.

_____ 1.5 to 2.4 points – Fair, making a few changes in your management practices will improve your property and better protect water quality.

_____ 1. to 1.4 points – Need Improvement, implementing the suggested BMP's on your property will greatly improve your small acreage and protect water quality

Implementing many of these practices on your small acreage will improve the look of your property, increase value, increase chore efficiency, save money, keep your animals healthier, protect water quality and improve overall property health. For more information on the management practices described in this document, see the follow list of references and contacts.



A small swale planted with wetland plants, where roof runoff is outleted to facilitate filtering and infiltration.

Small Acreage Program

For more information about implementing best management practices on your property contact:

Washington State University
Clark County Extension
1919 NE 78th Street
Vancouver, WA 98665
360-397-6060 extension 5729
FAX 360-759-6524
<http://clark.wsu.edu/>

Clark Conservation District
11104 NE 149th Street, C-400
Brush Prairie WA 98606
360-883-1987 extension 110
<http://clarkcd.org>

USDA Natural Resource
Conservation Service
11104 NE 149th Street, C-400
Brush Prairie WA 98606
360-883-1987 extension 3
<http://www.wa.nrcs.usda.gov/>

Resources:

Streams, Wetlands and Riparian Areas

King County Conservation District. *Livestock and Stream Management*. 2001, 2 pp. http://www.kingcd.org/pub_gen_liv.htm

Pacific Northwest Extension publication. *Taking care of streams in western Washington, western Oregon, and coastal Alaska: A landowner's guide to riparian areas*. PNW 558. Corvallis: Oregon State University. October 2002, 5 pp. <http://eesc.orst.edu/agcomwebfile/edmat/pnw558.pdf>

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Manure Management

Bary, A., Cogger, G. & Sullivan, D.M. *Fertilizing with manure*. PNW0533. Pullman: Washington State University Cooperative Extension. 2000, 16 pp. <http://cru.cahe.wsu.edu/CEPublications/pnw0533/pnw0533.pdf>

Godwin, D., Moore, J.A. *Manure management in small farm operations: Protecting surface and groundwater*. EM8649. Corvallis: Oregon State University Extension Service. May 1997, 8 pp. <http://eesc.orst.edu/agcomwebfile/edmat/em8649.pdf>

Gaolach, B. *Strategies for livestock manure management, Fact Sheet #539*. King County: Washington State University King County Agriculture and Natural Resources. September 2002, 4 pp. http://www.metrokc.gov/dnrp/swd/composting-soils/manure/documents/final_manure.pdf

Miles, C., Cheeke, T. & Flores, T. *From End to Beginning: A Manure Resource Guide for Farmers and Gardeners in Washington State*. October 1999, 15 pp. <http://www.metrokc.gov/dchs/csd/wsu-ce/agriculture/PDFs/ManureGuide.pdf>

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Blickle, A. *Figuring Out Footing Materials: Mud Management*. King Conservation District. August 2001, 3 pp. http://www.kingcd.org/pub_mud_fig.pdf

Harwood, E. *Sacrifice Areas: Reduce Mud and Keep Water Clean*. WSU Clark County Extension. May 2005, 5 pp. <http://clark.wsu.edu/horticulture/smallFarmProgram/sacrifice-areas.pdf>

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Roof Runoff and Water Diversion

Harwood, E. *Improving Drainage: Keeping Clean Water Clean and Reducing Mud*. WSU Clark County Extension. August 2005, 4 pp. <http://clark.wsu.edu/horticulture/smallFarmProgram/water-diversion.pdf>



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