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An Insight into the Current Livestock News

# Livestock



Current topics >>>

*Valuable news, tips and information all geared to help livestock owners and operators in Asotin County build a more successful operation.*

For more information go to [www.asotincd.org](http://www.asotincd.org)



## Livestock Management and Water Quality

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Livestock producers are legally responsible to prevent the pollution of surface waters that grazing livestock can cause due to the waste products they generate. Some of the major non-regulatory reasons for adopting good livestock management practices are improved and/or increased animal health, pasture productivity, wildlife habitat, land value, and ecosystem health. Applying this dynamic perspective of historical land use to water quality, the presence or absence of cows in a riparian area is not as important as the way they are managed. Also critical are the effects of

plant community changes from influences such as climate, weather events, and fire on potential pollutants such as sediment, pathogens, nutrients, and stream temperature.

From an ecological perspective, clean water should have low pathogen levels, sediment loading within a natural range of variability (all streams have different potential for sediment production according to specific geology, vegetation, slope, source water, etc.),

**The way [ranching] is practiced today is radically different from the way it was practiced then, even if we call it by the same name.**

no harmful amounts of chemicals, and a temperature range that supports aquatic life. Water quality is influenced by many human activities, whether agricultural, industrial, or recreational, as well as factors beyond our control such as climate events and most wildlife activities. Livestock grazing is one factor over which we have some control. However, purposeful water quality change requires

adaptation of many other local land management practices as well, all of which ultimately influence the surrounding ecosystem.

## Grazing >>>

# Effects of Grazing

Well-managed grazing that encourages even utilization of plants and allows time for plants to fully recover from defoliation offers a number of significant benefits to the manager and ecosystem, many of which have a positive chain effect:

- Maximizes forage production
- Minimized bare ground protects soil
- Increased grass and forb stem density slows the overland sheet flow of water
- Increased root growth and sloughing cycles build soil organic matter, which in turn increases: soil porosity and water infiltration

- Removes the growing points of many weeds
- Reduces the likelihood of animals picking up internal parasites (when adequate residual plant height is maintained).

Plant type also affects sustainable grazing management decisions.

A diversity of plant species is important to soil health and has implications for water quality. Perennial plants maintain a or equivalence of above-ground biomass and belowground root biomass, although there is variation among species. These differences contribute partially to the relative adaptation or resistance of perennial plants



*(Bunchgrass root mass at various levels of Defoliation (Reprinted by permission from the Agricultural Institute of Canada, Johnston 1961)*

Examples are bunchgrasses that have deep roots to access nutrients and enhance infiltration, compared to shallow rooted sod-forming species that protect the soil surface.



## Troughs!

**Water [troughs] can reduce the time that livestock spend drinking or loafing in streams by more than 90% (Miner et al. 1992), which results in a corresponding decrease in the direct deposition of manure into streams (Sherer et al. 1988).**

**Another way water tanks can benefit water quality is by lowering the risk of pathogens shed into surface water by young livestock with weakened immature immune systems from wet, cold spring conditions and manure-covered wintering areas.**

## Management tools >>>

# Riparian Forest Buffers

*An area adjacent to a stream, lake, or wetland that contains a combination of trees, shrubs, and/or other perennial plants and is managed differently from the surrounding landscape, primarily to provide conservation benefits.*

Riparian forest buffers are frequently part of conservation cost-share programs because the deep, large root systems of woody vegetation are important for holding together the soil of streambanks, much like rebar is to the stability of concrete. Shallower grass roots are like a skin or sealer that protects the soil surface. The extensive root systems of woody vegetation promotes soil infiltration by creating macropores and increases water-holding capacity by increasing soil organic matter. While woody vegetation may not be as effective as grass in removing sediment from overland flow, a riparian forest allows water to pass through the soil enroute to the water table or stream. The combination of grasses, sedges, rushes, shrubs, and trees in a riparian system is very effective at protecting water quality. Riparian forest is also important for nutrient uptake and subsequent storage of carbon and nitrogen by woody stems (Lowrance et al. 1984).



# Planned Grazing

*Perhaps the most overlooked solution in the search for “fixes” to water quality problems linked to livestock is better grazing management.*



The timing, duration, and intensity of livestock grazing are factors in a watershed that can be controlled. The key to grazing that promotes rangeland health is allowing adequate time for plant recovery. Such grazing is not restricted to leaving enough residual vegetation or keeping livestock off a pasture long enough to allow replacement of the photosynthetic leaf tissue but includes timing grazing so that it facilitates the long-term health and reproduction of the dominant (or desired) forage plants. Poor grazing management is akin to weeding a garden in reverse—removing the most desirable plants and leaving the least desirable to take advantage of nutrients, moisture, sunlight, and soil space. What is good for livestock is good for the ecosystem (i.e., the promotion of ecosystem health ensures a consistent, quality feed). Planned grazing that promotes healthy

plants also promotes healthy soil by ensuring root occupation throughout the soil profile, facilitating aeration and creation of new organic matter and maintaining optimum litter levels on the soil surface. Soil with these qualities is able to maximize the infiltration of precipitation and its capacity to hold water, which in turn is optimal for keeping manure onsite, recycling nutrients, and preventing overland water movement that might carry bacteria.

During the growing season, livestock should not be allowed to graze any plants lower than 3–4”; 5–6” of vegetation is best maintained if the dominant forage species are large bunchgrasses. Because livestock do not prefer all plants equally, especially when there is low stocking density, animals need to be removed once they have grazed the most preferred species to a target height to prevent these plant stands from declining.

Feeding locations during the winter need to be changed periodically so that manure is distributed evenly across the landscape. Alternatively, winter grazing can significantly trim operating expenses and avoid concentrating manure. Damage to pasture grass is minimal after the first few killing frosts as long as the sod is not broken by heavy traffic.



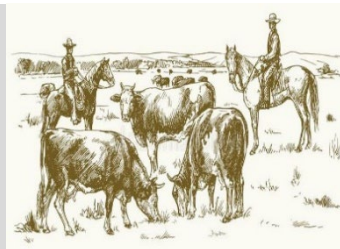
## Conclusion

The most important characteristic of a successful livestock manager is a commitment to ecologically sustainable management, which includes responding to changes on the land that illustrate a decline in vegetation viability. Otherwise known as adaptive management, the overall approach is simply close observation of the land allotted to a given number of livestock, and when things don't look right, changing the grazing management plan. Common sense will go a long way; Extension offices and conservation districts can help with less straightforward water quality and grazing management questions.

### Ask the experts

**Q:** *How many acres are dedicated to cattle ranching in the U.S.?*

**A:** Livestock grazing takes up 614 million acres, or 27% of U.S. land.



<https://pubs.extension.wsu.edu/livestock-management-and-water-quality>

