

CONFINEMENT AREAS – A confinement or “sacrifice area” is a designated space where horses are kept to concentrate their impact on the land while allowing pastures time to rest and regrow. Also known as dry lots, these areas help prevent overgrazing and soil compaction, especially on properties that can’t support continuous grazing or when horses need to be kept off lush, green pasture. Confinement areas are a key tool in sustainable pasture management.



THE 3 Fs OF HORSE HAPPINESS – Friends, forage, and freedom, often called the 3 Fs of horse happiness, reflect the natural lifestyle horses evolved for. In the wild, horses live in herds and travel 15–30 miles a day in search of food and water. To mimic this, some horse owners create “track systems” by placing two fences around the perimeter of a pasture. This setup encourages movement, which is good for horses’ physical and mental health.



INTEGRATED PEST MANAGEMENT (IPM) – IPM combines multiple strategies for weed and pest control, including biological, cultural, physical, and chemical methods. Grazing management is a key part of IPM, which emphasizes long-term, sustainable solutions over short-term fixes. If pesticides are used, dispose of containers, leftover product, and tank rinsate properly.



CONSERVATION TOOL RENTAL – NO-TILL DRILL SEEDER
No-till drills minimize soil disturbance by planting seeds directly into the soil through the previous crop, leaving most of the soil surface undisturbed. This maximizes efficiency, saves money, and offers numerous benefits for soil health, water conservation, and erosion control. The Missoula Conservation District has a Truax No-Till Drill available for rent in Missoula and neighboring counties.



STREAM PERMITTING – The 310 Law
In Montana, the Natural Streambed and Land Preservation Act of 1975 (310 Law) protects naturally flowing streams. A 310 permit is required for any activity that could impact a stream. This may include installing culverts, fencing, or removing brush or vegetation (such as mowing a lawn). Contact your local conservation district for more information.



We love our horses, so it is important for both the health of our animals and the health of our environment that we implement best management practices (BMPs) on our horse properties. We hope this guide helps you and your horses.

MANAGING YOUR WESTERN MONTANA PROPERTY FOR LAND, WATER, & HORSE HEALTH



HEALTHY HORSES DEPEND ON HEALTHY LAND AND WATER

Clean water and healthy forage are essential for horse health. Poor practices, such as excessive grazing and misguided manure management can degrade pastures, compromise soils, pollute streams, impact groundwater, foster pests, and cause health issues for horses and humans alike.

Through this guide, the Missoula Conservation District and partners offer you a brief overview of best management practices (BMPs) that can help you care for your horses while promoting soil health, protecting water quality, and enhancing nutrient availability for pasture plants and horses.

MANAGEMENT STARTS WITH GOALS

Some common horse keeping goals might include:

- Maximizing grazing or buying less hay.
- Keeping your horse moving all day for enrichment and/or health.
- Keeping your horse off too much green grass.
- Being environmentally sound in your horse management.

Let’s look at some BMPs that will help you achieve your goals.

Did You Know?

Since 1946, the Missoula Conservation District has helped landowners protect water quality and soil health while maintaining a rural lifestyle by providing technical assistance and cost sharing for conservation practices. Visit us online to learn more about our grants program.



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HEALTHY GRASSES NEED HEALTHY SOILS

HEALTHY SOIL STRUCTURE – Ideal soil for pasture growth is made up of about 50% solid material and 50% pore space. The solid portion includes roughly 45% mineral particles (sand, silt, and clay) and 5% organic matter (like decomposed plants and microbes). The pore space holds air and water, both essential for root development and nutrient uptake.

SOIL BIOLOGY – The rich variety of life underground—from microbes to larger soil-dwelling organisms—forms a living network that drives decomposition and nutrient cycling. Just one tablespoon of healthy soil can contain billions of microorganisms—including bacteria, fungi, protozoa, and other tiny life forms. This support vigorous grass growth by improving nutrient availability, soil structure, and water retention, resulting in more resilient, nutrient-rich forage for grazing horses.

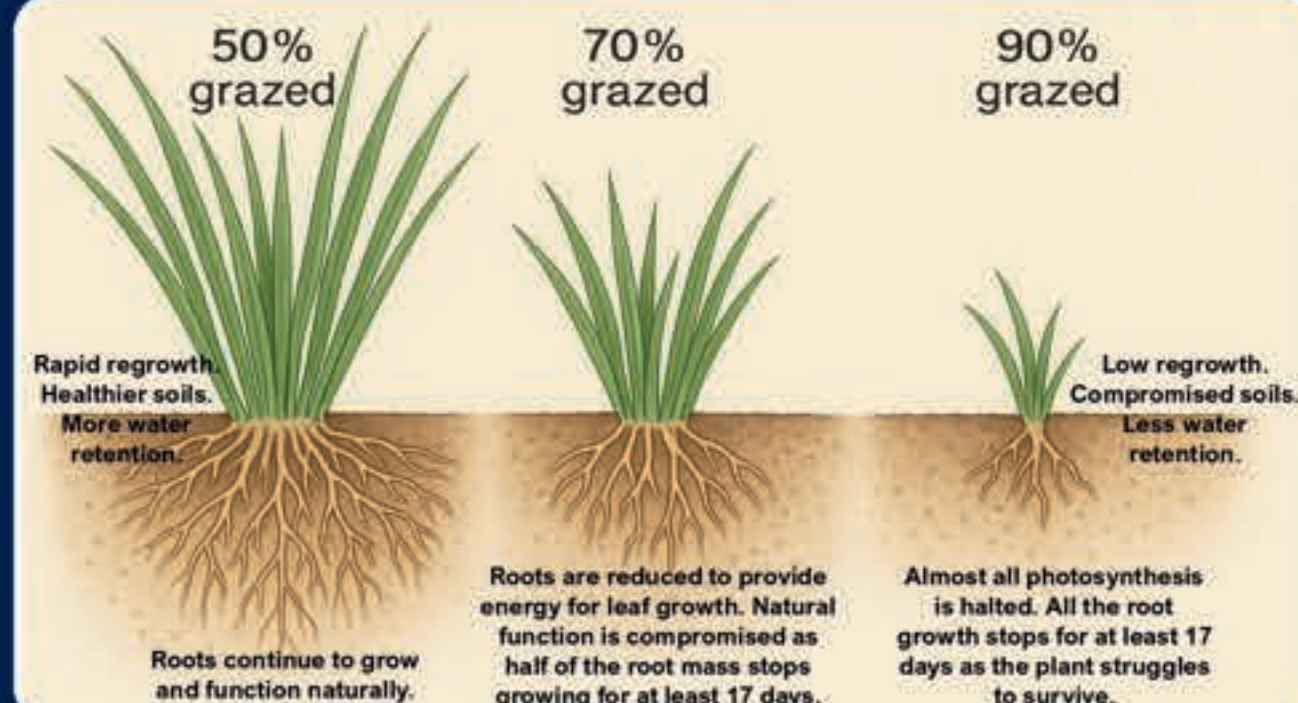
GRAZING MANAGEMENT – Grazing management is extremely important to protect the soil and provide healthy forage for your horses. Rotational grazing—moving horses into fenced areas and then giving those areas time to rest before grazing them again—is a key BMP for grazing management.

Put horses on grass when it is at least 6–8" tall, and remove them when the grass is 4–5" tall. If grass is kept at least 4 inches tall, the land can be 1.47 times as productive! That's like taking a 5-acre pasture and turning it into a 7.35-acre pasture.



Adaptive grazing, also known as regenerative grazing, is similar to rotational grazing in that it involves carefully controlling livestock density and the duration a particular pasture is grazed. It adjusts grazing practices based on current conditions, environmental feedback, and specific goals, rather than following a rigid protocol.

Healthy grass provides essential nutrients like Omega-3s, Vitamin E, and Vitamin A. When overgrazed or stressed, grass stores extra sugars (non-structural carbohydrates, especially fructans) in its lower stems and roots, making it dangerous for horses prone to laminitis or metabolic disorders. Proper grazing management results in lower sugar levels and more structural carbohydrates like cellulose, which provide fiber, support a healthy gut microbiome, and reduce the risk of colic.



THE DANGERS OF MISMANAGEMENT

NONPOINT SOURCE (NPS) POLLUTION – Unlike point source pollution, which comes from a single, identifiable source like a pipe discharging from a factory, nonpoint source (NPS) pollution comes from diffuse sources. It occurs when rainfall or snowmelt moves across the ground, picking up and carrying natural and human-made pollutants into rivers, lakes, wetlands, or even down into groundwater. Common NPS pollutants include:

- Excess fertilizers, herbicides, and insecticides from agricultural fields and residential yards.
- Sediment from poorly managed construction sites, croplands, forest lands, and eroding streambanks.
- Salt from irrigation practices and acid drainage from abandoned mines.
- Bacteria and nutrients from livestock, pet waste, and failing septic systems.

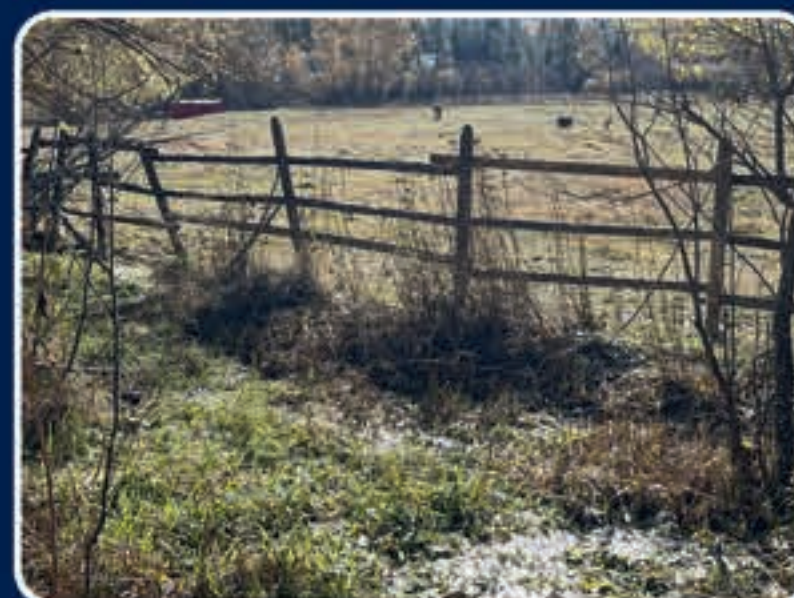
Soil is susceptible to compaction from farm equipment and even horse hooves—especially when vegetation has been removed due to overgrazing. Compacted soils lead to increased overland water flow and can quickly turn to mud.

Did you know?

- A horse can produce 40–50 lbs of manure and 2.5–4 gallons of urine per day.
- Exposed soil, urine, and manure create mud.
- Mud harbors bacteria and contributes to hoof and skin issues for your horse.
- Mud containing manure and urine can leach nutrients and pathogens into groundwater or run off into streams.

Well-managed land supports healthy soils, cleaner water, and healthier horses.

Visit www.missoulacd.org for a video presentation that provides additional information on the topics covered in this guide, as well as details on grants and cost-sharing programs.



BEST MANAGEMENT PRACTICES

MANURE STORAGE – Picking up manure is essential. Manure should be stored in a pile at least 100 feet away from any open water source or well. To decompose properly, manure needs oxygen, so placing it in a bin like the one pictured to the right is helpful, as it allows for turning with a shovel or tractor. Ideally, a manure storage bin will have an impervious floor, like cement, to protect groundwater from leaching contaminants. PVC pipes can be placed into the manure pile to create channels for airflow. Manure piles should be protected from rain and snow with a tarp. This also prevents them from drying out. Manure can be watered but should only be as wet as a wrung-out sponge. Manure is ready to spread when its volume has decreased by 50%.

GUTTERS AND RAIN BARRELS – An impervious surface, like a roof, can add a significant amount of runoff to a horse property. Imagine a 1,000-square-foot barn roof receiving 1" of rain. Instead of each square foot of land absorbing 1" of water, you now have 500" of additional water runoff landing on each side of the barn. To prevent this, use gutters to direct runoff away from paddocks or route it through buried drainpipes like the one pictured to the right. Make sure the outlet drains outside of your paddock. A rain barrel is another good option for capturing and storing roof runoff.

RIPARIAN BUFFERS – A buffer of ungrazed, unmanipulated vegetation around streams is important. Fencing off these riparian buffers (permits may be required) is a recommended practice, and the conservation district may be able to assist with cost-share programs for fencing these areas. Natural vegetation around streams filters pollutants and stabilizes banks with its roots. Grazing in these areas can erode streambanks, destroy habitat, and allow harmful nutrients from manure to enter the stream directly.

These BMPs will help keep nonpoint source pollutants out of our waters and keep our lands and, ultimately, our horses healthier!

