

DRAFT: Grazing Management Measures and Practices to Protect Water Quality

Water Quality Planning <i>The goal of maintaining or improving the quality of water should be included in ranch management plans for livestock operations. Encouraging ranchers to develop water quality plans are a good way to address potential water quality impacts.</i>			
Practice	Description	Water Quality Pollutant Addressed	NRCS Code
Ranch Water Quality Plan	<p>Ranch water quality goals need to be linked to water quality problems (impaired beneficial uses) identified by the Regional Water Quality Control Boards for the local basin or sub-basin. Ranch plans may follow several formats.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Natural Resources Conservation Service Conservation Planning • University of CA Cooperative Extension Ranch Water Quality Planning Instructor’s Guide and Lesson Plan • Any organized planning process conducted by the landowners, agencies, or private consultants 	All	N/A
Grazing Management Plan	A strategy designed to manage the intensity, frequency, and season of grazing to protect and/or enhance environmental values while maintaining or increasing the economic viability of the grazing operation.	All	N/A
Grazing Management Practices <i>Grazing systems should promote and maintain adequate vegetative cover to protect water quality by considering intensity, frequency, duration, and season of grazing.</i>			
Practice	Description	Water Quality Pollutant Addressed	NRCS Code
Grazing Management Strategy/ System	Grazing management strategies include the adjustment of stocking rate, stocking method, and whatever other method is available to manage defoliation. Grazing frequency, intensity, and timing are the major	Sediment; Nutrients; Pathogens; Temperature	N/A

DRAFT: Grazing Management Measures and Practices to Protect Water Quality

	aspects of defoliation affecting plant regrowth. There are many strategies such as continuous, rotation, rest-rotation, and high-intensity-low frequency.		
Controlling season of use	Controlling the portion of the year or growing season during which a particular area is grazed.	Sediment; Nutrients; Pathogens; Temperature	N/A
Grazing intensity	The cumulative effects grazing animals have on rangelands during a particular time period as measured by several factors such as percent utilization, stubble height, and residual matter.	Sediment; Nutrients; Pathogens; Temperature	N/A
Grazing frequency	How often a pasture is grazed. For example the number of occurrences of foliage removal over a certain period of time.	Sediment; Nutrients; Pathogens; Temperature	N/A
Timing and duration of each rest and grazing period	The season and length of time that livestock graze a particular area and the length of time an area is at rest before being grazed again	Sediment; Nutrients; Pathogens; Temperature	N/A
Livestock stocking rates	The number of animals on the entire grazing unit for the entire grazing season. In determining stocking rate, grazing managers attempt to balance the forage demand of grazing animals with forage production over the changing seasons. Can be calculated as either animals per acre or liveweight per acre.	Sediment; Nutrients; Pathogens; Temperature	N/A
Livestock kind and class	The species of livestock (cows, horses, sheep, goats) and the class (for cattle calves, heifers, cows, bulls, steers) to better understand carrying capacity, or the number of livestock that a pasture can support without environmental degradation.	Sediment; Nutrients; Pathogens; Temperature	N/A
Forage use allocation for livestock and wildlife	The planning process or act of apportioning available forage among various kinds of animals including livestock and wildlife	Sediment; Nutrients; Pathogens; Temperature	

DRAFT: Grazing Management Measures and Practices to Protect Water Quality

Livestock distribution	Spatial and temporal distribution of livestock on the landscape. This is essentially the pattern created by livestock grazing a pasture.	Sediment; Nutrients; Pathogens; Temperature	N/A
Prescribed Grazing	Managing the harvest of vegetation with grazing and/or browsing animals with the intent to achieve specific ecological, economic, and management objectives.	Sediment	528
Access Control	The temporary or permanent exclusion of animals, people or vehicles from an area.	Sediment; nutrients; temperature; pathogens	472
Watering Facility	A watering facility is a means of providing drinking water to livestock or wildlife. Its proper location will improve animal distribution and vegetation. A watering facility is sometimes installed to keep livestock out of streams and other surface water areas where water quality is a concern.	Sediment; Nutrients; Pathogens; Temperature	614
<p>Structural Range Improvements <i>Structural range improvements may be used to facilitate proper grazing use. These practices should be planned, constructed, and utilized in manner to enhance or maintain water quality. These management practices should be linked in the ranch plan to proper grazing use, and to other ranch water quality goals.</i></p>			
Practice	Description	Water Quality Pollutant Addressed	NRCS Code
Access Roads	An access road is used to provide a fixed route for vehicular travel for resource activities involving the management of timber, livestock, agriculture, wildlife habitat, and other conservation enterprises. Appropriately sized culverts and runoff are important considerations for water quality.	Sediment	560
Facility Siting/Design Criteria	Consideration of the location and/or design of feeding, working, holding, chemical storage and shipping facilities in proper proximity for water quality protection.	Sediment; Nutrients; pathogens	N/A
Fence	A constructed barrier to animals or people, providing a means to control	Sediment; nutrients;	382

DRAFT: Grazing Management Measures and Practices to Protect Water Quality

	movement of animals and people, including vehicles.	temperature; pathogens	
Livestock Pipelines	A pipeline and appurtenances installed to convey water for livestock or wildlife.	Sediment; nutrients; temperature; pathogens	516
Ponds	A pond is a water impoundment made by constructing an embankment, by excavating a dugout, or by a combination of both and should be off-channel.	Sediment; nutrients; temperature; pathogens	378
Sediment Basins	A basin constructed with an engineered outlet, formed by constructing an embankment, excavating a dugout, or a combination of both to capture and detain sediment-laden runoff, or other debris for a sufficient length of time to allow it to settle out in the basin.	Sediment; nutrients	350
Spring Development	Collection of water from springs or seeps to improve the quantity and quality of water for livestock and wildlife.	Sediment; nutrients; temperature; pathogens	574
Trails and Walkways	A trail is a constructed path with a vegetated or earthen surface. A walkway is a constructed path with an artificial surface. A trail/walkway is used to facilitate the movement of animals, people, or off-road vehicles without disturbing vegetation and compacting additional ground.	Sediment; temperature	575
Streambank and Shoreline Protection	Treatment(s) used to stabilize and protect banks of streams or constructed channels, and shorelines of lakes, reservoirs, or estuaries.	Sediment; temperature	580
Watering Facility	A watering facility is a means of providing drinking water to livestock or wildlife. Its proper location will improve animal distribution and vegetation. A watering facility is sometimes installed to keep livestock out of streams and	Sediment; Nutrients; Pathogens; Temperature	614

DRAFT: Grazing Management Measures and Practices to Protect Water Quality

	other surface water areas where water quality is a concern.		
Grazing Land Mechanical Treatment	Modifying physical soil and/or plant conditions with mechanical tools by treatments such as pitting, contour furrowing, and chiseling, ripping or Subsoiling.	Sediment	548
Land Reclamation, Landslide Treatment	Managing in-place natural materials, mine spoil (excavated over-burden), mine waste or overburden to reduce down-slope movement.	Sediment	453
Water Well	A hole drilled, dug, driven, bored, jetted or otherwise constructed into an aquifer for water supply to provide access to a groundwater supply suitable for livestock watering, fire control, wildlife, and other agricultural uses.	Sediment; nutrients; Pathogens; temperature	642
Stream Crossing	A stabilized area or structure constructed across a stream to provide controlled access for people, livestock, equipment, or vehicles to reduce sediment, nutrient, or organic loading to a stream.	Sediment; nutrients; Pathogens; temperature	578
<p>Riparian Zone/ Streamside Vegetation <i>Agricultural activities must allow the establishment and development of the vegetation expected to grow along the stream naturally, given the soil type, elevation and climate. Plants need a chance to establish and grow to maturity. Healthy streamside vegetation provides shade, stabilizes banks, filters nutrients and sediment, and provides fish and wildlife habitat.</i></p>			
Practice	Description	Water Quality Pollutant Addressed	NRCS Code
Riparian forest buffer	A riparian forest buffer is an area of trees and/ or shrubs located adjacent to a body of water. The vegetation extends outward from the water body for a specified distance necessary to provide a minimum level of protection and/or enhancement.	Sediments; Temperature	391
Riparian herbaceous cover	Riparian herbaceous cover is establishment and maintenance of grasses, grass-like plants, and forbs that are tolerant of intermittent flooding or saturated soils and that are established or managed in the transitional zone	Sediment; Temperature; Pathogens	390

DRAFT: Grazing Management Measures and Practices to Protect Water Quality

	between terrestrial and aquatic habitats.		
Stream habitat improvement and management	Stream habitat improvement and management is the maintenance, improvement, and restoration of physical, chemical, and biological functions of a stream.	Sediment; Nutrients; Pathogens; temperature	395
Critical Area Planting	Establishing permanent vegetation on sites that have, or are expected to have, high erosion rates, and on sites that have physical, chemical, or biological conditions that prevent the establishment of vegetation with normal seeding/planting methods.	Sediment	342
Stream Corridor Improvement	Restoration of a modified or damaged stream to a more natural state using bio-engineering techniques to protect the banks and to re-establish the riparian vegetation. It does not apply to short reaches of stream that should be treated by Practice 580 (Streambank Protection) or Practice 584 (Stream Channel Stabilization).	Sediment; temperature	204
Wetland Wildlife Habitat Management	To maintain, develop, or improve wetland habitat for waterfowl, shorebirds, fur-bearers, or other wetland dependent or associated flora and fauna.	Sediment; Nutrients; Pathogens; Temperature	644
Channel bank Vegetation (acres)	Establishing and maintaining vegetative cover on channel banks, berms, spoil, and associated areas.	Sediment; Temperature	322
Filter Strip (acres)	A strip or area of herbaceous vegetation that removes contaminants from overland flow.	Sediment; Nutrients; Pathogens	393
Watering Facility	A watering facility is a means of providing drinking water to livestock or wildlife. Its proper location will improve animal distribution and vegetation. A watering facility is sometimes installed to keep livestock out of streams and other surface water areas where water quality is a concern.	Sediment; Nutrients; Pathogens; Temperature	614

DRAFT: Grazing Management Measures and Practices to Protect Water Quality

Access Control	The temporary or permanent exclusion of animals, people or vehicles from an area.	Sediment; nutrients; pathogens; temperature	472
Uplands and Erosion Control <i>A protective cover of crops and crop residue, grass, shrubs, or trees will capture, store, and safely release precipitation, thereby reducing the potential runoff of soil or pollutants. Keep soil where it belongs — on your fields.</i>			
Practice	Description	Water Quality Pollutant Addressed	NRCS Code
Brush Management	The management or removal of woody (nonherbaceous or succulent) plants including those that are invasive and noxious to restore or release desired vegetative cover to protect soils, control erosion, reduce sediment, improve water quality, or enhance hydrology.	Sediment	314
Range Planting	Establishment of adapted perennial or self-sustaining vegetation such as grasses, forbs, legumes, shrubs and trees.	Sediment	550
Conservation Cover (acres)	Conservation cover is establishing and maintaining perennial vegetative cover to protect soil and water resources on land retired from agricultural production or other lands needing permanent protective cover that will not be used for forage production.	Sediment; Temperature	327
Tree/shrub establishment	Tree/shrub establishment involves planting seedlings or cuttings, seeding, or creating conditions that promote natural regeneration.	Temperature	612
Residual Dry Matter (RDM)	The amount of old plant material left on the ground at the beginning of a new growing season. RDM indicates the previous season's use and can be used to describe the health or condition of annual rangelands.	Sediment; nutrients	N/A
Livestock Management <i>Livestock management practices such as animal health, feeding and salting should be done in a manner to protect water quality.</i>			

DRAFT: Grazing Management Measures and Practices to Protect Water Quality

Practice	Description	Water Quality Pollutant Addressed	NRCS Code
Livestock Parasite Control	Management strategies that protect and reduce the risk of livestock infection by parasites and pathogens	Pathogens	N/A
Supplement Feeding and Salting	Feeding practices that minimize livestock concentration near water bodies and facilitate more uniform livestock distribution.	Pathogens	N/A
<p>Federal Utilization Standards <i>On public lands, natural resource managers with the United States Forest Service and Bureau of Land Management apply annual grazing utilization standards intended to benefit riparian resources by limiting grazing pressure. These standards can be applied to any grazed lands to inform management decisions.</i></p>			
Practice	Description	Water Quality Pollutant Addressed	NRCS Code
Percent plant utilization	The percent plant utilization is the proportion of the current year's forage production that is consumed or destroyed by grazing animals. It may refer to a single plant species or to the vegetation as a whole.	All	N/A
Stubble height	The height of grassy and herbaceous vegetation on a site when the livestock leave the area in the fall has been termed "stubble height." Stubble height is a surrogate for plant and streambank and riparian protection/rebuilding capabilities	All	N/A
Presence of riparian woody vegetation	Woody species utilization is a short-term indicator of livestock consumption of woody plants (shrubs and trees) along streambanks. Woody plants are important to riparian environments because of their ability to reduce rates of erosion.	All	N/A
Bank Disturbance	Bank disturbance is an assessment of the stability of the streambank and the percentage that has been trampled by livestock.	All	N/A