

Soil Resource Concerns

Sheet and rill erosion

Detachment and transport of soil particles caused by rainfall, melting snow, or irrigation.

Objective: Reduce sheet and rill erosion to tolerable limits.

Wind Erosion

Detachment and transport of soil particles caused by wind.

Objective: Reduce wind erosion to tolerable limits.

Ephemeral Gully Erosion

Soil erosion that results in small gullies in the same flow area that can be obscured by tillage or other soil distribution activities.

Objective: Control the formation of ephemeral gullies.

Classic gully erosion

Gullies created by runoff that can enlarge a channel progressively by head cutting and/or lateral widening.

Objective: Stabilize an actively eroding gully.

Bank erosion from streams, shorelines or water conveyance channels

Erosion resulting from poor land management practices, storm events, wave action, rain, ice, wind, runoff, loss of vegetation, hydrologic dynamics, stream isolation from floodplains, and/or other disturbed/altered geomorphological processes.

Objective: Restore the stability of eroding banks.

Subsidence

Loss of volume and depth of organic soils due to oxidation caused by above normal microbial activity resulting from excessive water drainage, soil disturbance, or extended drought. This excludes naturally occurring sinkholes and issues, or depressions caused by underground activities.

Objective: Reduce potential for subsidence to occur and treat existing subsidence.

Compaction

Management-induced soil compaction at any level throughout the soil profile resulting in reduced plant productivity, biological activity, infiltration and aeration.

Objective: Reduce soil compaction.

Organic matter depletion

Management-induced depletion of any or all pools of soil organic matter resulting in limited soil function and processes that support plant productivity, biological activity and water and nutrient cycling.

Objective: Maintain, increase and/or improve soil organic matter.

Concentration of salts or other chemicals

Concentration of salts leading to salinity and/or sodicity reducing productivity or limiting desired use, or concentrations of other chemicals impacting productivity, populations of beneficial organisms or limiting desired use.

Objective: Reduce concentration of salts or other chemicals in the soil.

Soil organism habitat loss or degradation

Quantity, quality, diversity or connectivity of food, cover, space, shelter and/or water is inadequate to meet requirements of beneficial soil organisms.

Objective: Improve habitat for beneficial soil organisms.

Aggregate instability

Management-induced degradation of water stable soil aggregates resulting in destabilized soil carbon; surface crusting; reduced water infiltration, water holding capacity, and aeration; depressed resilience to extreme weather; increased ponding and flooding; increased soil erosion and plant stress; and reduced habitat and soil biological activity.

Objective: Improve aggregate stability.

Water Resource Concerns

Ponding and flooding

Water covering the land surface, along with saturated conditions below the surface, degrades natural resources, or restricts capability of land to support its intended use.

Objective: Reduce the risk of natural resource degradation, or limitation to land use caused by flooding or ponding.

Seasonal high water table

Groundwater or a perched water table causing saturated conditions near the surface degrades water resources or restricts capability of land to support its intended use.

Objective: Reduce the risk of natural resource degradation or limitation to land use caused by a seasonal high water table.

Seeps

Sub-surface saturated flows that percolates slowly to the surface, degrades water resources, or restricts capability of land to support its intended use.

Objective: Reduce the risk of natural resource degradation, or limitation to land use caused by a seep.

Drifted snow

Wind-blown snow accumulates around and over surface structures, which restricts access to humans or animals; or wind removes snow from desired location where it can be used to accumulate water.

Objective: Control where snow drifts accumulate.

Surface water depletion

Water from collected precipitation runoff, ponds, lakes, surface watercourses and reservoirs is used at a rate that is detrimental to ecological functions or other identified uses and threatens sustained availability of surface water.

Objective: Reduce surface water depletion.

Groundwater depletion

Underground water is used at a rate greater than aquifer recharge.

Objective: Reduce the risk of natural resource degradation, or limitation to land use caused by groundwater depletion.

Naturally available moisture use

Natural precipitation is not optimally managed to support desired land use goals or ecological processes.

Objective: Manage natural precipitation more efficiently.

Inefficient Irrigation water use

Irrigation water is not stored, delivered, scheduled and/or applied efficiently.

Objective: Manage irrigation water efficiently.

Nutrients transported to surface water

Nutrients (organic and inorganic) stored, concentrated, or applied are transported to receiving surface waters in quantities that degrade water quality and limit its use for intended purposes.

Objective: Reduce transport of nutrients to surface water.

Nutrients transported to groundwater

Nutrients (organic and inorganic) stored, concentrated, or applied are transported to groundwaters in quantities that degrade water quality and limit its use for intended purposes.

Objective: Reduce transport of nutrients to groundwater.

Pesticides transported to surface water

Pesticides are lost from their application area and transported to surface water sources in quantities that degrade water quality and limit its use for intended purposes.

Objective: Reduce hazardous pesticide losses from application areas that can be transported to surface water sources.

Pesticides transported to groundwater

Pesticide loses from the application area are transported to groundwater sources in quantities that degrade water quality and limit its use for intended purposes.

Objective: Reduce hazardous pesticide losses from application areas that can be transported to groundwater sources.

Pathogens and chemicals from manure, bio-solids, or compost applications

transported to surface water

Pathogens, pharmaceuticals, leachate and chemicals from manure, bio-solids or compost transported to receiving waters in quantities that degrade water quality and limit uses.

Objective: Reduce transport of pathogens, pharmaceuticals, leachate and polluting chemicals from manure, bio-solids, or compost to surface water.

Pathogens and chemicals from manure, bio-solids, or compost applications

transported to groundwater

Pathogens, pharmaceuticals, leachate and chemicals from manure, biosolids or compost transported to groundwaters in quantities that degrade water quality and limit uses.

Objective: Reduce transport of pathogens, pharmaceuticals, leachate and polluting chemicals from manure, bio-solids, or compost to groundwater.

Salts transported to surface water

Irrigation or rainfall runoff transports salts to receiving surface waters in quantities that degrade water quality and limit use for intended purposes.

Objective: Limit transfer of salts from site to receiving surface waters.

Salts transported to groundwater

Irrigation or rainfall infiltration transport salts to groundwater in quantities that degrade aquifer water quality and limit intended uses.

Objective: Limit loss of salts from site to groundwater.

Petroleum, heavy metals, and other pollutants transported to surface water

Petroleum, heavy metals, and other pollutants for on-farm use are lost from areas of concentration (handling, storage, or processing facilities and areas) to receiving surface waters in quantities that degrade water quality and limits its use for intended purposes. This resource concern does not cover pathogens/manure, sediment (although sediment contaminated with petroleum, heavy metals, or other pollutants would be covered), nor naturally occurring salts.

Objective: Reduce losses from facilities for handling, storing, or processing of petroleum, heavy metals, and other pollutants to surface water.

Petroleum, heavy metals, and other pollutants transported to groundwater

Petroleum, heavy metals, and other pollutants for on-farm use are lost from areas of concentration (handling, storage, or processing facilities and areas) to receiving groundwater in quantities that degrade water quality and limit its use for intended purposes. This resource concern does not cover pathogens/manure, sediment (although sediment contaminated with petroleum, heavy metals, or other pollutants would be covered), nor naturally occurring salts.

Objective: Reduce losses from facilities for handling, storing, or processing of petroleum, heavy metals, and other pollutants to groundwater.

Sediment transported to surface water

Offsite transport of sediment to surface water degrades water quality and limits use for intended purposes.

Objective: Limit sediment loss from site to surface waters.

Elevated water temperature

Surface water temperatures exceed State/Federal standards in downstream receiving waters which limits its use for identified fish or as aquatic habitat.

Objective: Lower stream water temperature and/or prevent additional water temperature increases in downstream receiving waters.

Air Resource Concerns

Emissions of particulate matter (PM) and PM precursors

Direct emissions of particulate matter – dust and smoke – as well as the formation of fine particulate matter in the atmosphere from other agricultural emissions – ammonia, oxides of nitrogen, and volatile organic compounds – can cause multiple negative environmental impacts.

Objective: Emissions of PM and PM precursors from agricultural activities do not excessively contribute to negative impacts to human, plant, or animal health; do not excessively contribute to regional visibility restriction, unwanted chemical droplet drift, and unwanted deposition on surfaces; and do not result in safety or nuisance visibility restrictions.

Emissions of greenhouse gases (GHGs)

Emissions of methane, nitrous oxide, and carbon dioxide increase atmospheric concentrations of greenhouse gases.

Objective: Emissions of nitrous oxide from nitrogen fertilizer, methane and nitrous oxide from confinement-based animal production, and loss of carbon from soils and biomass do not excessively contribute to increased atmospheric concentrations of greenhouse gases.

Emissions of ozone precursors

Emissions of ozone precursors – oxides of nitrogen and volatile organic compounds (VOCs) – result in formation of ground-level ozone, which can have negative impacts to human, plant, and animal health.

Objective: Emissions of ozone precursors from agricultural activities do not excessively contribute to negative impacts to human, plant, or animal health.

Emissions of airborne reactive nitrogen

Emissions of airborne reactive nitrogen – ammonia and oxides of nitrogen – can negatively impact atmospheric chemistry, cause unwanted fertilization via deposition in sensitive ecosystems, and degrade regional visibility.

Objective: Emissions of airborne reactive nitrogen from agricultural activities do not excessively contribute to negative atmospheric and/or ecosystem impacts.

Plant Resource Concerns

Plant productivity and health

Improper fertility, management or plants not adapted to site negatively impact plant productivity, vigor and/or quality

Objective: Improve poor plant productivity and health.

Plant structure and composition

Plant communities have insufficient composition and structure to achieve ecological functions and management objectives. This resource concern includes degradation of wetland habitat, targeted ecosystems, or unique plant communities.

Objective: Improve plant structure and composition.

Plant pest pressure

Excessive pest damage to plants including that from undesired plants, diseases, animals, soil borne pathogens, and nematodes. This concern addresses invasive plant, animal and insect species.

Objective: Reduce plant pest pressure.

Wildfire hazard from biomass accumulation

The kinds and amounts of plant biomass create wildfire hazards that pose risks to human safety, structures, plants, animals, and air resources.

Objective: Reduce biomass accumulation and the risk of wildfire hazard.

Animal Resource Concerns

Terrestrial habitat for wildlife and invertebrates

Quantity, quality or connectivity of food, cover, space, and/or water is inadequate to meet requirements of identified terrestrial wildlife or invertebrate species.

Objective: Improve quantity and quality of habitat to meet requirements of identified terrestrial wildlife or invertebrate species.

Aquatic habitat for fish and other organisms

Quantity, quality, or connectivity of water, food, cover and space, is inadequate to meet requirements of identified fish or other organisms.

Objective: Provide water that is sufficient in quality and extent to meet identified species or guild habitat requirements, remove barriers to enable aquatic species movement and improve associated riparian habitat to meet identified species or guild habitat requirements.

Feed and forage imbalance

Feed and Forage quality and/or quantity is inadequate for nutritional needs and production goals of the kinds and classes of livestock.

Objective: Balance the quantity and quality of feed and forage to meet livestock needs and reduce negative impacts to other resources.

Inadequate livestock shelter

Livestock lack adequate shelter from climatic conditions to meet basic needs.

Objective: Supply adequate shelter to meet grazing livestock needs.

Inadequate livestock water quantity, quality and distribution

Quantity or quality of drinking water are insufficient to meet basic needs for the kind and class of livestock and improper distribution negatively impacts other resources.

Objective: Supply adequate quantity and quality of water to meet basic livestock needs and assure proper distribution to reduce negative impacts to other resources.

Energy Resource Concerns

Energy efficiency of equipment and facilities

Stationary equipment or facilities are using energy inefficiently. In addition to energy use in and around buildings on the farmstead, this includes other stationary equipment such as grain dryers or commodity storages as well as equipment in the field such as irrigation pumps, irrigation systems, and center pivots.

Objective: Improve energy efficiency of stationary equipment and facilities to reduce energy use.

Energy efficiency of field operations

Mobile on-farm, field operations are using energy inefficiently. This includes use of tractors, trucks or other mobile equipment as well as changes in farming/ranching and forestry practices that reduce energy use such as making fewer trips across the field or implementing practices that result in less energy use.

Objective: Improve energy efficiency of farming, ranching, forestry practices and mobile field operations to reduce energy use.