

Best Management Practices (BMP's) consist of sustainable approaches to land planning and management that protect soil and water resources against degradation. Resource management agencies, groups and educators identify and promote BMP's in varying ways. This appendix provides information on BMP's recommended by the Natural Resource Conservation Service (NRCS). The NRCS defines Best Management Practices in their Field Office Technical Guides according to the following criteria:

Conservation Practice -- A structural measure, a vegetative measure or a management activity used to protect, enhance or manage, soil, water, air, plant or animal resources

Conservation Practice Standard -- A set of statements that defines a practice; identifies the purposes and applicability of the practice; establishes criteria to support each purpose; lists special concerns useful in planning, designing, and constructing the practice; and establishes installation, operation and maintenance requirements.

Conservation Practice Specifications -- Site specific documents that establish the technical details and workmanship required to install the practices in accordance with the requirements of the practice standard.

The following is a partial list of current NRCS practices that apply to San Juan County. The definitions given are summaries taken from the Conservation Practice Standard pages for each practice in Field Office Technical Guide 4. In creating conservation plans, planners recommend that combinations of these practices be implemented in concert to achieve desired results and improve water quality.

Bedding (310) -- Plowing, blading, or otherwise elevating the surface of flat land into a series of broad, low ridges separated by shallow, parallel channels to provide improved surface drainage, minimize water ponding, permit efficient operation of tillage and harvesting equipment, and eliminate sources of mosquito production.

Brush Management (314) -- Removal, reduction, or manipulation of non-herbaceous plants to restore natural plant community balance; create a desired plant community; reduce competition for space, moisture, and sunlight between desired and unwanted plants; manage woody plants; restore vegetation cover to protect soils, control erosion, reduce sediment, improve water quality and enhance stream flow, maintain or enhance wildlife habitat, protect from wildfire hazards, and improve visibility and access for handling livestock.

Channel Vegetation (AC) (322) -- Establishment and maintenance of plants on channel banks, berms, spoils, and associated areas to stabilize channel banks and adjacent areas and reduce erosion and sedimentation.

Chiseling and Subsoiling (324) -- Loosening the soil, without inverting and with a minimum of mixing of the surface soil, to shatter restrictive layers below the normal plow depth that inhibit water movement or root development.

Commercial Fishponds (397) -- A water impoundment constructed and managed for commercial aquaculture production to provide a favorable water environment for producing, growing, harvesting and marketing aquaculture crops and to control water quality.

Composting Facility (317) -- A facility for the biological stabilization of waste organic material to treat waste biologically by producing a hums-like material that can be recycled as a soil amendment and fertilizer substitute or otherwise utilized in compliance with all laws, rules and regulations.

Conservation Cover (327) -- Establishing and maintaining perennial vegetative cover to protect soil and water resources on land retired from agricultural production to reduce soil erosion and sedimentation, improve water quality, and create or enhance wildlife habitat.

Conservation Crop Rotation (328) -- Growing crops in a re-occurring sequence on the same field to reduce sheet and rill erosion, reduce irrigation induced erosion, maintain or improve soil organic content, manage plant nutrients, improve water use efficiency, manage saline seeps, manage plant pests, provide food for domestic livestock and provide food and cover for wildlife.

Constructed Wetland (656) -- A wetland that has been constructed for the primary purpose of water quality improvement.

Contour Farming (AC) (330) -- Farming sloping land in such a way that preparing land, planting, and cultivating are done on the contours to reduce erosion and control water.

Contour Orchard and Other Fruit Area (331) -- Planting orchards, vineyards, or small fruits so that all cultural operations are done on the contour to reduce soil and water loss, better control and use water, and operate farm equipment more easily.

Controlled Drainage (335) -- The control of surface and subsurface water through the use of drainage facilities and water control structures to conserve water and maintain optimum soil moisture, optimize infiltration, increase plant root zone depth, improve surface water quality, reduce nitrates in drainage water, reduce subsidence and wind erosion, and provide water for wildlife.

Cover Crop (340) - A crop of close-growing grasses, legumes, or small grains grown primarily for seasonal protection and soil improvement. This crop is usually grown for 1 year or less, except where there is permanent cover as in orchards.

Critical Area Planting (342) -- Planting vegetation, such as trees, shrubs, vines, grasses, or legumes, on highly erodible or critically eroding areas to stabilize the soil, reduce damage from sediment and runoff to downstream areas, and improve wildlife habitat and visual resources.

Cross Wind Ridges (589A) -- Ridges formed by tillage or planting and aligned across the prevailing wind erosion direction to reduce soil erosion from wind.

Cross Wind Strip Cropping (589B) -- Growing crops in strips established across the prevailing wind erosion direction, and arranged so that strips susceptible to wind erosion are alternated with strips having a protective cover that is resistant to wind erosion.

Cross Wind Trap Strips (589C) -- Herbaceous cover resistant to wind erosion established in one or more strips across the prevailing wind erosion direction to reduce erosion from wind, protect growing crops from damage by wind-borne particles, and provide food and cover for wildlife.

Fence (382) -- Enclosing or dividing an area of land with a suitable permanent structure that acts as a barrier to livestock, big game, or people to protect areas from grazing, regulate access and protect new seedlings.

Field Border (386) -- A strip of permanent vegetation established at the edge or around the perimeter of a field to reduce erosion from wind and water, protect soil and water quality, manage harmful insect populations and provide wildlife food and cover.

Filter Strip (393) -- A strip or area of vegetation for removing sediment, organic matter, and other pollutants from runoff and wastewater.

Fish Stream Improvement (395) -- Improving a stream channel to make a new fish habitat or to enhance an existing habitat to increase the production of desired species of fish.

Floodwater Diversion (400) -- A graded channel with a supporting embankment or dike on the lower side constructed on lowland subject to flood damage to improve the crop-growing environment of lowlands and improve water quality.

Forage Harvest Management (511) -- The timely cutting and removal of forages from the field as hay, green-chop, or ensilage to optimize economic yield, promote vigorous plant regrowth, maintain desired species composition, control insects and disease and improve wildlife habitat.

Forest Harvest Trails and Landings (655) -- Laying out, constructing and using forest harvest trails and landings to allow for removal of a forest product while minimizing onsite and offsite damage to resources.

Forest Site Preparation (490)- Treating areas to encourage natural regeneration of desirable trees and shrubs or to permit artificial regeneration by planting or direct seeding.

Forest Stand Improvement (666) -- To manipulate species composition and stocking by cutting or killing selected trees and understory vegetation.

Grazing Land Mechanical Treatment (548) -- Modifying physical soil and/or plant conditions with mechanical tools by treatments such as; pitting, contour furrowing, and ripping or subsoiling to fracture compacted soil layers and improve soil permeability, reduce water runoff and increase infiltration, increase plant vigor and produce greater yields.

Heavy Use Area Protection (561) -- Protecting heavily used areas by establishing vegetative cover, by surfacing with suitable materials, or by installing needed structures.

Hedgerow Planting (422) -- Establishing a living fence of shrubs or trees in, across, or around a field to delineate field boundaries, serve as fences, establish contour guidelines, provide wildlife food and cover, provide screens, or improve the landscape.

Hillside Ditch (423) -- A channel that has a supporting ridge on the lower side constructed across the slope at definite vertical intervals and gradients, with or without a vegetative barrier, to control water flow in non-cultivated sloping areas by diverting runoff to a protected outlet, thus minimizing erosion, conserving water and improving water quality.

Irrigation Field Ditch (388) -- A permanent irrigation ditch constructed to convey water from the source of supply to a field or fields in a farm distribution system to prevent erosion or loss of water quality or damage to land.

Irrigation Storage Reservoir (436) -- An irrigation water storage structure made by constructing a dam to conserve water by holding it in storage until it can be beneficially used to meet crop irrigation requirements, provide incidental water for livestock, fish, wildlife, recreation, and fire control.

Irrigation Water Conveyance (428) -- A pipeline and appurtenances installed in an irrigation system to prevent erosion, prevent a reduction of water quality, damage to land due to water logging, and to make possible proper management of irrigation water and reduce water conveyance losses.

Land Clearing (460) -- Removal of trees, stumps, and other vegetation from wooded areas to achieve needed land use adjustments and to provide improvements in the interest of soil and water conservation.

Land Smoothing (466) -- Removing irregularities on the land surface by use of special equipment to improve surface drainage, obtain more uniform planting depths and facilitate contour cultivation.

Mole Drain (482) -- An underground conduit constructed by pulling a bullet shaped cylinder through the soil to establish a system of subsurface channels for removal of trapped surface and shallow subsurface water from low gradient land.

Mulching (484) -- Applying plant residues or other suitable materials not produced on the site to the soil surface to conserve moisture, prevent surface compaction and crusting, reduce runoff and erosion, control weeds and help establish plant cover.

Nutrient Management (590) -- Managing the amount, form, placement, and timing of applications of plant nutrients to optimize forage and crop yields, minimize entry of nutrients to surface and groundwater, and maintain or improve chemical and biological conditions of the soil.

Obstruction Removal (500) -- Removal and disposal of unwanted, unsightly or hazardous buildings, structures, vegetation, landscape features, trash, and other materials.

Pasture and Hay Planting (512) -- Establishing and reestablishing long-term stands of adapted species of perennial, biennial, or reseeding forage plants to reduce erosion, produce high quality forage, and to adjust land use.

Pest Management (595A) -- Managing agricultural pest infestations to reduce adverse effects on plant growth, crop production and environmental resources in order to develop a pest management system that is both consistent with selected crop production goals and is environmentally acceptable.

Pond (378) -- A water impoundment made by constructing a dam or an embankment or by excavating a pit or dugout to provide water for livestock, fish and wildlife, recreation, fire control, crop and orchard spraying, and other related uses and to maintain or improve water quality.

Pond Sealing or Lining (521) -- Installing a fixed lining of impervious material or treating the soil in a pond mechanically or chemically to impede or prevent excessive water loss.

Precision Land Forming (462)-Reshaping the surface of land to planned grades to improve surface drainage, provide land forming operations for drainage and erosion control, improve moisture conservation, help leaching uniformity, and improve water quality.

Prescribed Burning (338) -- Applying controlled fire to predetermined areas to control undesirable vegetation, prepare sites for planting or seeding, control plant disease, reduce wildfire habitat, improve forage production quantity or quality, remove slash and debris, enhance seed and seedling production and facilitate the distribution of grazing and browsing animals.

Prescribed Grazing (528A) -- The controlled harvest of vegetation with grazing or browsing animals managed to improve or maintain the health and vigor of selected plants and to maintain a stable and desired plant community, provide or maintain food, cover and shelter for animals of concern, improve or maintain animal health and productivity, maintain or improve water quality and quantity and reduce accelerated soil erosion and maintain or improve soil condition for sustainability of the resource.

Range Planting (550) -- Establishment of adapted perennial vegetation such as grasses, forbs, legumes, shrubs, and trees to restore a plant community similar to its historic climax, provide or improve forage for livestock, provide or improve habitat for wildlife, reduce erosion and improve water quality and quantity.

Recreation Area Improvement (562) -- Establishing grasses, legumes, vines, shrubs, trees, or other plants or selectively reducing stand density and trimming woody plants to improve an areas attractiveness and usefulness for recreation and to protect soil and plant resources.

Recreation Land Grading and Shaping (566) -- Altering the surface of the land to meet the requirements of recreation facilities to permit effective uses of the land area for recreation, improve surface drainage for recreation use and obtain more uniform soil depths.

Recreation Trail and Walkway (568) -- A pathway prepared especially for pedestrian, equestrian, and cycle travel to provide users of recreation areas with travel routes for such activities, prevent erosion on or along pathways, and to preserve and protect soil, plant, animal, and visual resources.

Regulating Water in Drainage Systems (554) -- Controlling the removal of surface or subsurface runoff, primarily through the operation of water control structures to establish and encourage the growth of desired field or forest plants, reduce soil subsidence and erosion and provide water for wildlife.

Residue Management, (329) -- Managing the amount, orientation, and distribution of crop and other plant residue on the soil surface year-round, while growing crops where the entire field surface is tilled prior to planting to reduce erosion, conserve soil moisture and provide food and escape cover for wildlife.

Restoration and Management of Declining Habitats (643) -- Restoring and conserving rare or declining native vegetated communities and associated wildlife species.

Riparian Forest Buffer (391A) -- An area of trees and/or shrubs located adjacent to and up-gradient from water bodies to create shade, lower water temperatures, improve habitat for aquatic organisms, provide a source of detritus and large woody debris for aquatic organisms and habitat for wildlife and reduce excess amounts of sediment, organic material, nutrients and pesticides in surface water.

Roof Runoff Management (558) -- A facility for collecting, controlling, and disposing of runoff water from roofs to prevent roof runoff water from flowing across concentrated waste areas, barnyards, roads and alleys, and to reduce pollution and erosion, improve water quality, prevent flooding, improve drainage and protect the environment.

Row Arrangement (557) -- Establishing a system of crop rows on planned grades and lengths primarily for erosion control and water management.

Runoff Management System (570) -- A system for controlling excess runoff caused by construction operations at development sites, changes in land use, or other land disturbances to regulate the rate and amount of runoff and sediment from development sites.

Soil Salinity Management-Non Irrigated (571) -- Management of land, water, and plants to control harmful accumulations of salts on the soil surface or in the root zones on non-irrigated areas.

Streambank and Shoreline Protection (580) -- Treatments (vegetative and erosion control) used to stabilize and protect banks of streams or constructed channels and shorelines of lakes, reservoirs, or estuaries.

Stripcropping, Contour (585) -- Growing crops in a systematic arrangement of strips or bands on the contour to reduce water erosion. The crops are arranged so that a strip of grass or a close-growing crop is alternated with a strip of clean-tilled crop or fallow or a strip of grass is alternated with a close-growing crop.

Stripcropping, Field (586) -- Growing crops in a systematic arrangement of strips or bands across the general slope (not on the contour) to reduce water erosion. The crops are arranged so that a strip of grass or a close-growing crop is alternated with a clean tilled crop or fallow.

Surface Drainage, Field Ditch (607)- A graded ditch for collecting excess water in a field to drain surface depressions, collect or intercept excess surface water from natural or graded land surfaces, and convey excess water to an outlet.

Surface Roughening (609) -- Roughening the soil surface by ridge or clod-forming tillage to reduce wind erosion on cultivated land.

Tree/Shrub Establishment (612) -- to establish woody plants by planting or seeding to provide forest products, control erosion, reduce air pollution, beautify an area, protect a watershed and provide wildlife habitat.

Tree/Shrub Pruning (660A) -- Removing all or parts of selected branches from trees and shrubs to improve the intended function of the plant, improve appearance of trees and shrubs, improve the quality of the wood product and reduce a safety hazard.

Underground Outlet (620) -- A conduit installed beneath the surface of the ground to collect surface water and convey it to a suitable outlet, to dispose of excess water from terraces, diversions, subsurface drains or other concentrations without causing damage by erosion or flooding.

Upland Wildlife Habitat Management (645) -- Creating, restoring, maintaining or enhancing areas for food, cover, and water for upland wildlife and species which use upland habitat for a portion of their lifecycle.

Use Exclusion (472) - Excluding animals, people, or vehicles from an area to protect, maintain, or improve the quantity and quality of the plant, animal, soil, air, water and aesthetic resources and human health and safety.

Waste Management System (312) -- A planned system in which all necessary components are installed for managing liquid and solid waste, including runoff from concentrated waste areas, in order to minimize degradation of air, soil and water resources and protect public health.

Waste Storage Facility (313) -- A waste impoundment made by constructing an embankment and/or excavating a pit or dugout or by fabricating a structure to temporarily store wastes such as manure, wastewater, and contaminated runoff as a function of an agricultural waste management system.

Waste Treatment Lagoon (359) -- An impoundment made by excavation or earthfill for biological treatment of animal or other agricultural waste to biologically treat organic waste and to reduce pollution and protect the environment.

Water and Sediment Control Basin (638) -- An earth embankment or a combination ridge and channel generally constructed across the slope and minor watercourses to form a sediment trap and water

detention basin to reduce watercourse and gully erosion, trap sediment, reduce and manage onsite and downstream runoff, and improve downstream water quality.

Water Harvesting Catchment (636) -- A facility for collecting and storing precipitation to provide water for livestock, fish and wildlife, recreation, or other purposes.

Wetland Creation (658) -- A wetland that has been created on a site location which historically was not a wetland or is a wetland but the site will be converted to a wetland with a different hydrology, vegetation type, or function than naturally occurred on the site.

Wetland Enhancement (659) --The modification or rehabilitation of an existing or degraded wetland, where specific functions and/or values are modified for the purpose of meeting project objectives.

Wetland Restoration (657) -- The rehabilitation of a degraded wetland to restore both the hydrologic conditions and the hydrophytic plant community that occurred on site before modification.

Wetland Wildlife Habitat Management (644) -- Retaining, developing or managing habitat for wetland wildlife to maintain, develop, or improve habitat for waterfowl, fur-bearers, or other wetland associated flora and fauna.

Wildlife Watering Facility (648) -- Develop, improve, or modify watering places and systems for wildlife to provide adequate drinking water during critical periods, to create or expand suitable habitat for wildlife and to improve water quality.

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