

Effects of NRCS Conservation Practices - National

Alley Cropping

Trees or shrubs planted in a set or series of single or multiple rows with agronomic, horticultural crops or forages produced in the alleys between the rows of woody plants.

Code: 311

Units: ac

Typical Landuse: C

AL-Aso Land
 O-Other
 W-Water
 D-Developed
 FS-Farmstead
 P-Protected
 R-Range
 F-Forest
 C-Crop

<u>Soil Erosion</u>	<u>Effect</u>	<u>Rationale</u>
Soil Erosion - Sheet and Rill Erosion	5	Vegetation and surface litter reduce raindrop impact and slow runoff water increasing infiltration.
Soil Erosion - Wind Erosion	5	Tall vegetation creates a wind shadow, reduces erosive wind velocities and provides a stable area which stops saltating particles.
Soil Erosion - Ephemeral Gully Erosion	5	Vegetation reduces erosive energy of concentrated water flows reducing detachment of soil particles.
Soil Erosion - Classic Gully Erosion	3	Reduce the flows contributing to gully erosion.
Soil Erosion - Streambank, Shoreline, Water Conveyance C	0	Not Applicable
<u>Soil Quality Degradation</u>		
Organic Matter Depletion	5	Roots and vegetative matter from permanent vegetation increases organic matter.
Compaction	2	Root penetration and organic matter helps restore soil structure.
Subsidence	0	Not Applicable
Concentration of Salts or Other Chemicals	1	Plants may take up some salts, and increased root penetration improves infiltration that may lead to increased leaching.
<u>Excess Water</u>		
Excess Water - Seeps	1	Plants uptake excess water.
Excess Water - Runoff, Flooding, or Ponding	1	Reduced runoff results in increased water infiltration which will slightly reduce the potential for flooding or ponding.
Excess Water - Seasonal High Water Table	2	Plants uptake excess water.
Excess Water - Drifted Snow	3	Snow is captured by tree/shrub crowns and deposited between rows.
<u>Insufficient Water</u>		
Insufficient Water - Inefficient Use of Irrigation Water	3	Tall vegetation reduces wind speeds and evapotranspiration allowing more efficient use of available water.
Insufficient Water - Inefficient Moisture Management	0	Crops must be adapted and managed to account for use of available water by trees.
<u>Water Quality Degradation</u>		
Pesticides in Surface Water	3	Trees and shrubs take up pesticide residues and may intercept pesticide drift. Also, the practice reduces runoff and erosion.
Pesticides in Groundwater	1	Trees and shrubs take up pesticide residues. Also, pesticide degradation may be improved by increased soil organic matter and biological activity.
Nutrients in Surface water	3	Plants and soil organisms uptake nutrients.
Nutrients in Groundwater	1	Plants and soil organisms uptake nutrients.
Salts in Surface Water	1	Vegetation encourages infiltration, which reduces the amount of surface runoff.
Salts in Groundwater	1	The action may promote increased salinity uptake due to vigorous plant growth..
Excess Pathogens and Chemicals from Manure, Bio-solic	3	Ground vegetation captures and delays pathogen movement and thereby increase their mortality.
Excess Pathogens and Chemicals from Manure, Bio-solic	1	Improved vegetation encourages infiltration of surface water and associated pathogens, but increased plant vigor and microbial activity reduces pathogen numbers.

Excessive Sediment in Surface Water	3	Vegetation retards sediment-laden water to allow it to drop sediment load.														
Elevated Water Temperature	0	Surface run-off is diminished if flow is intercepted by alley cropping.														
Petroleum, Heavy Metals and Other Pollutants Transport	1	Growing plants will take up metals.														
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<u>Air Quality Impacts</u>																
Emissions of Particulate Matter (PM) and PM Precursors	2	Permanent vegetation can serve as a windbreak, reducing erosive wind velocities and providing a stable area which stops saltating particles.														
Emissions of Ozone Precursors	0	Not Applicable														
Emissions of Greenhouse Gases (GHGs)	2	Vegetation removes CO2 from the air and stores it in the form of carbon in the plants and soil.														
Objectionable Odors	0	Not Applicable														
<u>Degraded Plant Condition</u>																
Undesirable Plant Productivity and Health	5	Plants are selected and managed to maintain optimal productivity and health.														
Inadequate Structure and Composition	1	Plants selected are adapted and suited.														
Excessive Plant Pest Pressure	3	Vegetation is installed and managed to control undesired species.														
Wildfire Hazard, Excessive Biomass Accumulation	0	Not Applicable														
<u>Fish and Wildlife - Inadequate Habitat</u>																
Inadequate Habitat - Food	3	If suitable plant species are chosen and managed to enhance food value for target species.														
Inadequate Habitat - Cover/Shelter	3	Suitable plant species are selected and managed to enhance cover/shelter for wildlife.														
Inadequate Habitat - Water	5	Not Applicable														
Inadequate Habitat - Habitat Continuity (Space)	3	Tall vegetation creates vertical habitat structure.														
<u>Livestock Production Limitation</u>																
Inadequate Feed and Forage	1	The quality and quantity of feed and forage plants is enhanced by improving the microclimate.														
Inadequate Shelter	0	Not Applicable														
Inadequate Water	0	Not Applicable														
<u>Inefficient Energy Use</u>																
Equipment and Facilities	0	Not Applicable														
Farming/Ranching Practices and Field Operations	1	Potential biomass production, crop production inputs are reduced														
		<table border="1"> <thead> <tr> <th colspan="2"><u>CPPE Practice Effects:</u></th> </tr> </thead> <tbody> <tr> <td>5 Substantial Improvement</td> <td>0 No Effect</td> </tr> <tr> <td>4 Moderate to Substantial Improvement</td> <td>-1 Slight Worsening</td> </tr> <tr> <td>3 Moderate Improvement</td> <td>-2 Slight to Moderate Worsening</td> </tr> <tr> <td>2 Slight to Moderate Improvement</td> <td>-3 Moderate Worsening</td> </tr> <tr> <td>1 Slight Improvement</td> <td>-4 Moderate to Substantial Worsening</td> </tr> <tr> <td></td> <td>-5 Substantial Worsening</td> </tr> </tbody> </table>	<u>CPPE Practice Effects:</u>		5 Substantial Improvement	0 No Effect	4 Moderate to Substantial Improvement	-1 Slight Worsening	3 Moderate Improvement	-2 Slight to Moderate Worsening	2 Slight to Moderate Improvement	-3 Moderate Worsening	1 Slight Improvement	-4 Moderate to Substantial Worsening		-5 Substantial Worsening
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