

Effects of NRCS Conservation Practices - National

Windbreak/Shelterbelt Establishment

Windbreaks or shelterbelts are single or multiple rows of trees or shrubs in linear configurations.

Code: 380

Units: ft.

Typical Landuse:

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

<u>Soil Erosion</u>	<u>Effect</u>	<u>Rationale</u>
Soil Erosion - Sheet and Rill Erosion	1	Vegetation planted across the slope and surface litter reduces erosive water energy.
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	2	Vegetation across the slope reduces erosive energy of concentrated flows.
Soil Erosion - Classic Gully Erosion	0	Not Applicable
Soil Erosion - Streambank, Shoreline, Water Conveyance C	0	Not Applicable
<u>Soil Quality Degradation</u>		
Organic Matter Depletion	4	Increased vegetative matter and its breakdown increases soil organic matter.
Compaction	2	Root penetration and organic matter helps restore soil structure.
Subsidence	0	Not Applicable
Concentration of Salts or Other Chemicals	1	Most woody species take up limited quantities of salts.
<u>Excess Water</u>		
Excess Water - Seeps	2	Plants uptake excess water.
Excess Water - Runoff, Flooding, or Ponding	0	Trees or shrubs increase infiltration but may retard flood water movement from the site.
Excess Water - Seasonal High Water Table	2	Plants uptake excess water.
Excess Water - Drifted Snow	5	Snow is captured within and down wind of tree/shrub rows.
<u>Insufficient Water</u>		
Insufficient Water - Inefficient Use of Irrigation Water	5	Tall vegetation reduces wind speeds and evapotranspiration allowing more efficient use of available water.
Insufficient Water - Inefficient Moisture Management	3	Shelting effect of windbreak reduces evapotranspiration allowing more efficient use of available water.
<u>Water Quality Degradation</u>		
Pesticides in Surface Water	3	The action reduces soil erosion from wind and may intercept pesticide drift.
Pesticides in Groundwater	0	Not Applicable
Nutrients in Surface water	1	Permanent woody vegetation will utilize nutrients and filter suspended organic material from runoff.
Nutrients in Groundwater	1	Permanent vegetation will uptake excess nutrients.
Salts in Surface Water	0	Not Applicable
Salts in Groundwater	0	The action may increase vegetative uptake in the shelterbelt.
Excess Pathogens and Chemicals from Manure, Bio-solic	0	Not Applicable
Excess Pathogens and Chemicals from Manure, Bio-solic	0	Not Applicable

Excessive Sediment in Surface Water	1	Vegetation across the slope traps sediment preventing it from being deposited elsewhere.
Elevated Water Temperature	0	Not Applicable
Petroleum, Heavy Metals and Other Pollutants Transport	1	The action reduces wind erosion, reducing transport of heavy metals attached to particulates. Some plants may take up heavy metals..
Petroleum, Heavy Metals and Other Pollutants Transport	0	Not Applicable
<u>Air Quality Impacts</u>		
Emissions of Particulate Matter (PM) and PM Precursors	4	Windbreaks can be very effective in reducing particulate emissions associated with wind erosion. They are also effective in filtering particulate matter and ammonia from the air.
Emissions of Ozone Precursors	0	Not Applicable
Emissions of Greenhouse Gases (GHGs)	4	Vegetation removes CO2 from the air and stores it in the form of carbon in the plants and soil.
Objectionable Odors	3	Vegetation will reduce wind movement and intercept VOCs, fine particulates, and fugitive dust.
<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	1	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	Improved plant diversity and quality and quantity of vegetation provides food for wildlife.
Inadequate Habitat - Cover/Shelter	3	Improved plant diversity and quality and quantity of vegetation provides cover for wildlife.
Inadequate Habitat - Water	1	Not Applicable
Inadequate Habitat - Habitat Continuity (Space)	3	Tall vegetation creates vertical habitat structure and enhanced space for wildlife.
<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	5	Tall vegetation provides shelter.
Inadequate Water	0	Not Applicable
<u>Inefficient Energy Use</u>		
Equipment and Facilities	3	Reduces heating around farmsteads
Farming/Ranching Practices and Field Operations	1	Less water stress on crops. Potential biomass.

CPPE Practice Effects:	<i>0 No Effect</i>
<i>5 Substantial Improvement</i>	<i>-1 Slight Worsening</i>
<i>4 Moderate to Substantial Improvement</i>	<i>-2 Slight to Moderate Worsening</i>
<i>3 Moderate Improvement</i>	<i>-3 Moderate Worsening</i>
<i>2 Slight to Moderate Improvement</i>	<i>-4 Moderate to Substantial Worsening</i>
<i>1 Slight Improvement</i>	<i>-5 Substantial Worsening</i>