NRCS Natural Resources Conservation Service

Windbreak/Shelterbelt Establishment

Conservation Practice Job Sheet 380

South Carolina

Definition

Windbreaks or shelterbelts are plantings of single or multiple rows of trees or shrubs that are established for environmental purposes. Living snowfences are an important variation of windbreaks and shelterbelts in some parts of the country. The height of the tallest row and overall density of foliage and branches of an individual windbreak/shelterbelt planting greatly influence the size of the nearby area that is protected or sheltered.

Purpose

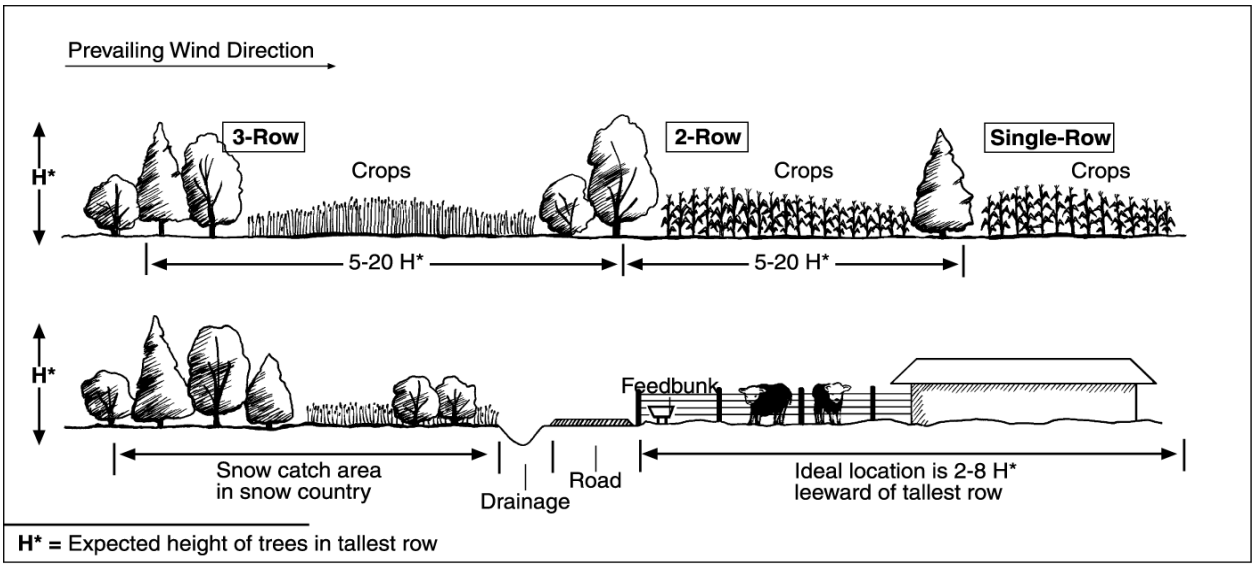
Windbreaks or shelterbelts are generally established to protect or shelter nearby, leeward areas from troublesome winds. Such plantings are used to reduce wind erosion, protect growing plants (crops and forage), alter microenvironment to enhance plant growth, manage snow, improve irrigation efficiency, and delineate field boundaries. Windbreaks also protect structures and livestock, provide wildlife habitat and travel corridors, enhance aesthetics, and increase carbon storage. Also, when used as a living screen, windbreaks control views, reduce noise, and intercept chemical drift.

Where used

Windbreaks are “environmental buffers” that are planted in a variety of settings, such as on cropland, pasture, and rangeland (sometimes referred to as “living barns”); along roads, farmsteads, feedlots; and in urban areas.

Resource management system

Windbreaks and shelterbelts are normally established concurrently with other practices as part of a resource management system for a conservation management unit. For example, conservation crop rotation, residue management, and windbreaks can act together to control wind erosion year-round.



A windbreak or shelterbelt usually consists of multiple rows, with shrubs in the outer rows and taller trees in the interior. Complementary practices work with these environmental buffers to further control wind erosion and snow deposition and modify site characteristics for habitat and screening purposes. For comprehensive protection of a field, windbreaks are placed in a series across the area (typically spaced at intervals of 5 to 20 times the height of each windbreak), with individual windbreaks running parallel to one another, but perpendicular to prevailing winds.

Wildlife

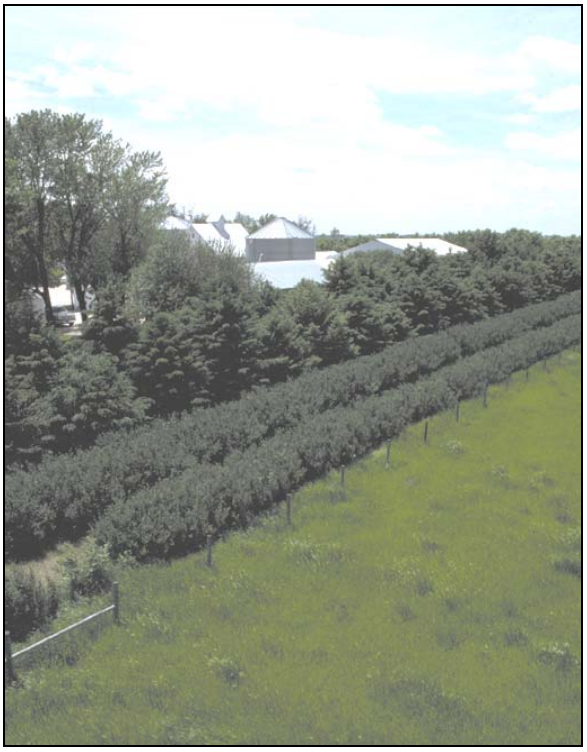
For plantings to function properly, access by livestock and certain wildlife must be managed year-round (use exclusion and fencing). Connecting shelterbelts with existing or planned perennial vegetation, such as woodlots and woody draws (tree/shrub establishment) or riparian areas (riparian forest buffer), provides additional benefits for wildlife, pollinators, and aesthetics. Select native species that provide wildlife food or cover. Do not plant non-native or invasive species. A list of species that should not be planted can be found on the internet at: http://www.se-eppc.org/southcarolina/; Click on the Invasive Plant List. Contact NRCS staff for information regarding appropriate native plant species.

Operation and maintenance

Trees and shrubs in a windbreak or shelterbelt need periodic maintenance and, later on, possible renovation (tree/shrub pruning and windbreak/ shelterbelt renovation). In arid areas windbreaks may need supplemental water or the use of water-harvesting techniques for successful establishment.

Specifications

Site-specific requirements are listed on the specifications sheet. Additional provisions are entered on the job sketch sheet. Specifications are prepared in accordance with the NRCS Field Office Technical Guide. See practice standard Windbreak/ Shelterbelt Establishment, code 380.



This multiple-row windbreak protects the adjacent farmstead and provides important wildlife habitat.

Windbreak/Shelterbelt Establishment – Job Sheet

Landowner_____ Field number_____

Purpose (check all that apply)	
☐ Reduce soil erosion from wind	☐ Provide living noise screens
☐ Protect plants from wind-related damage	☐ Provide living visual screens
☐ Alter microenvironment for enhancing plant growth	☐ Provide living barriers against airborne chemical drift
☐ Manage snow deposition	☐ Delineate property and field boundaries
☐ Provide shelter for structures, livestock, and recreational areas	☐ Improve irrigation efficiency
	☐ Enhance aesthetics
☐ Enhance wildlife habitat by providing travel corridors	☐ Increase carbon storage

Location and Layout	
Width (feet; include widths of maintenance areas next to outer rows):	
Length (feet):	Area (acres):
Total area of zone protected/sheltered (acres; based on expected height and density of the windbreak/shelterbelt):	
Additional requirements:	

Woody Plant Materials Information

Species/cultivar by row number:	Kind of stock[1]:	Planting Dates	Distance between plants within row (ft):	Total number of plants for row:	Distance (ft) from this row to next row[2]:
1					
2					
3					
4					
5					
6					
7					--

[1]BAreroot, COntainer, CUtting; include size, caliper, height, and age as applicable. [2]Adjusted for width of maintenance equipment.

Temporary Storage Instructions

Planting stock that is dormant may be stored temporarily in a cooler or protected area. For stock that is expected to begin growth before planting, dig a V-shaped trench (heeling-in-bed) sufficiently deep and bury seedlings so that all roots are covered by soil. Pack the soil firmly and water thoroughly. Additional requirements:

Site Preparation

Remove debris and control competing vegetation to allow enough spots or sites for planting and planting equipment. Prepare supplemental moisture materials for installation if required by trees and/or shrubs. Additional requirements:

Planting Methods

For container and bareroot stock, plant stock to a depth even with the root collar in holes deep and wide enough to fully extend the roots. Pack the soil firmly around each plant. Cuttings are inserted in moist soil with at least 2 to 3 buds showing above ground. Tree and shrub shelters may be needed in areas where heavy deer browse will occur. Additional requirements:

Operation and Maintenance

Inspect windbreak/shelterbelt components periodically and protect from damage so proper function is maintained. Replace dead or dying tree/shrub stock and continue control of competing vegetation to allow proper establishment. Install and begin supplemental irrigation if required. Remove or spot treat competing non-native invasive plants. Additional requirements:

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If needed, an aerial view or a side view of the practice can be shown below. Other relevant information, complementary practices and measures, and additional specifications may be included.

Scale 1"=_____ ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")

Additional Specifications and Notes:

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