

# Windbreak/Shelterbelt Establishment

## Conservation Practice Job Sheet

**380**

Ver. 09/09



Polk County, MN

## 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 in some parts of the state. The height of the tallest row and overall density of foliage and branches of an individual windbreak planting greatly influence the size of the nearby area that is protected or sheltered.

## Purpose

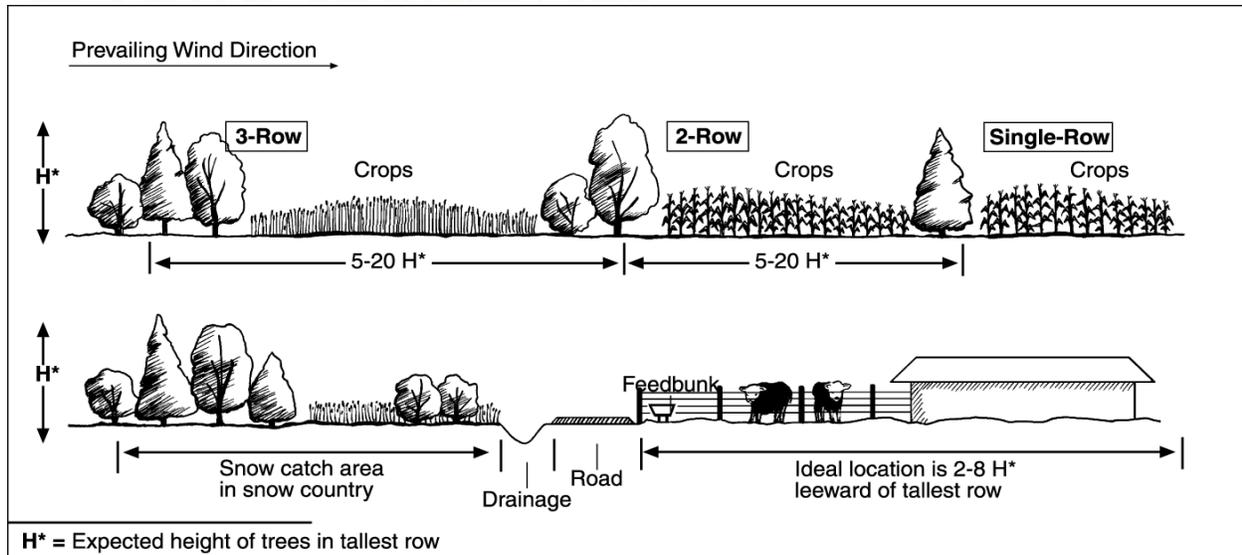
Windbreaks or shelterbelts are generally established to protect or shelter nearby, leeward areas from troublesome winds. Such plantings are used to reduce wind erosion, protect growing plants (crops and forage), alter microenvironment to enhance plant growth, manage snow, improve irrigation efficiency, provide shelter for livestock, protect structures, improve air quality, and serve as noise and visual

screens. Windbreaks also provide wildlife habitat and travel corridors, enhance aesthetics, delineate property boundaries and increase carbon storage.

## 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.

Vegetative barriers such as windbreaks do not replace best management practices for reducing soil erosion or wind-blown snow; nor can windbreaks totally eliminate drifting soil, snow or ice problems. Windbreaks serve best as a supporting practice as part of a wind, soil or snow control system.



A windbreak or shelterbelt usually consists of multiple rows of woody plants, 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.

## Resource management system

Windbreaks and shelterbelts are normally established concurrently with other practices as part of a resource management system (RMS) for a conservation management unit. For example, conservation crop rotation, residue management, and windbreaks can act together to control wind erosion year-round. Other practices for the RMS may include grassed waterways, fencing, prescribed grazing and wildlife habitat establishment.

## Wildlife

For plantings to function properly, access by livestock and certain wildlife must be managed year-round (access control and fencing for at least the first 3 to 5 years after planting). 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 and aesthetics. Select native or adapted species that provide wildlife food or cover (upland wildlife habitat establishment).

## 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 NRCS Conservation Practice Standard Windbreak/Shelterbelt Establishment, Code 380 for more information.



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

# Windbreak/Shelterbelt Establishment – Job Sheet

Landowner \_\_\_\_\_ Field  
 number \_\_\_\_\_

<b>Primary purpose: (From the list below: What is the primary purpose of the windbreak?)</b>	
<b>Secondary Purpose (check all that apply)</b>	
<input type="checkbox"/> Reduce soil erosion from wind	<input type="checkbox"/> Provide living noise screens
<input type="checkbox"/> Protect plants from wind related damage	<input type="checkbox"/> Provide living visual screens
<input type="checkbox"/> Alter microenvironment for enhancing plant growth	<input type="checkbox"/> Improve air quality by reducing particulate matter and odors
<input type="checkbox"/> Manage snow accumulation and deposition	<input type="checkbox"/> Delineate property and field boundaries
<input type="checkbox"/> Provide shelter for structures, livestock and people	<input type="checkbox"/> Improve irrigation efficiency
<input type="checkbox"/> Enhance wildlife habitat	<input type="checkbox"/> Increase carbon storage

<b>Location and Layout</b>	
Width (feet, including width of maintenance area around perimeter):	
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				
Determine the location of Row 1:	Kind of stock <sup>1</sup> :	Distance between plants within row (ft):	Total number of plants for row:	Distance between adjacent rows: (ft)
Species/cultivar by row number:				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

<sup>1</sup>BArroot, COntainer, CUtting; include size, caliper, height, and age as applicable. <sup>2</sup>Adjusted for width of maintenance equipment for mature plants.

Density (Check the applicable density designation.)		
<input type="checkbox"/> Snow distribution - 25-50% <input type="checkbox"/> Snow accumulation - ≥ 65%, NTE 80% <input type="checkbox"/> Protection of structures, livestock & people - ≥65%, NTE 80% <input type="checkbox"/> Noise screens - ≥ 65%, NTE 80%		<input type="checkbox"/> Air quality - at least 50% on the windward side of the source area and, for windbreaks on the downwind side of the source area, at least 65%, NTE 80% <input type="checkbox"/> Density for other purposes is generally ≥ 50%, NTE 65%
<b>25-50% density:</b> <input type="checkbox"/> 1-row - deciduous shrubs <input type="checkbox"/> 2-row - deciduous trees and deciduous shrubs	<b>50-65% density:</b> <input type="checkbox"/> Twin-row - deciduous shrubs <input type="checkbox"/> 1-row – non-deciduous conifer trees <input type="checkbox"/> 2-row - non-deciduous conifer trees and deciduous trees <input type="checkbox"/> 3-row - combination of deciduous trees and deciduous shrubs	<b>65+% density (NTE 80%):</b> <input type="checkbox"/> Twin-row - medium to tall non-deciduous conifer trees <input type="checkbox"/> 3 or more rows - combination of non-deciduous conifer trees, deciduous trees and shrubs

<b>Site Preparation</b>
Follow guidelines in NRCS Conservation Practice Standard Site Preparation, Code 490. Additional requirements:
<b>Temporary/Permanent Cover</b>
Follow guidelines in the 380 Specification Sheet. Use the form MN-CPA-003 for the seeding plan. Additional requirements:
<b>Planting Methods</b>
Follow guidelines in NRCS Conservation Practice Standard Tree/Shrub Establishment, Code 612. Additional requirements:
<b>Supplemental Moisture</b>
Follow guidelines in NRCS Conservation Practice Standards Mulching, Code 484 or Irrigation System, Sprinkler, Code 442. Additional requirements:
<b>Operation and Maintenance</b>
Inspect windbreak components periodically. Note damage or symptoms of insects, disease or storms. Protect and repair windbreak so proper function is maintained. Replace dead or dying tree/shrub stock and continue control of competing vegetation for at least 3 years to allow proper establishment. The windbreak will also be protected from livestock and wildlife damage (as practical) by the use of fencing, repellents, bud caps, tree tubes or other protective devices Refer to Technical Note 44 "Reducing Deer Browse Damage" if necessary. Properly install and maintain weed control fabric (if used) so that girdling of stems is avoided. Prune dead or dying branches to maintain function by using NRCS Conservation Practice Standard Tree/Shrub Pruning, Code 660. Follow the guidelines for renovation, if needed, in NRCS Conservation Practice Standard Windbreak Renovation, Code 650. Additional requirements:

If needed, an aerial view or a side view of the practice can be shown below. Or attach the form MN-ECS-002 Tree/Shrub Planting Plan and/or an aerial photograph. 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")


<b>Additional Specifications and Notes:</b>
