

# Windbreak/Shelterbelt Establishment

## Conservation Practice Job Sheet

**Code 380**



### 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 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.

Windbreaks or screens are generally not recommended around or within close proximity to

poultry houses and facilities. Tree planting practices may provide disease pathways from wild birds into the facility.



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

Utilize multiple species and at least three rows for windbreaks and shelterbelts where wildlife is a concern. Select native or adapted species that provide wildlife food or cover. Wildlife benefits are exponentially better with more rows and greater spacing to allow crown development. However, the increase in spacing should not compromise the intended primary purpose.

Unless the purpose for the windbreak is to mitigate pesticide drift, pollinators may also benefit from windbreaks. The plants selected must provide pollen or nectar resources. In addition shrubs that contain soft pith for wood nesting bees should be considered. Because woody species stop blooming earlier in the growing season and the floral resources are not available, it is not advisable to depend solely upon woody species to provide pollinator resources.

Consider utilizing tree species that are not attractive to bees when the primary purpose is to minimize pesticide drift.

## Design

The layout of the windbreak should be perpendicular to the prevailing wind direction.

Multiple windbreaks may be required depending on the size of the area to be protected and topographical features including drainage and other factors.

Depending upon the purpose of the windbreak, single or multiple rows of trees may be used.

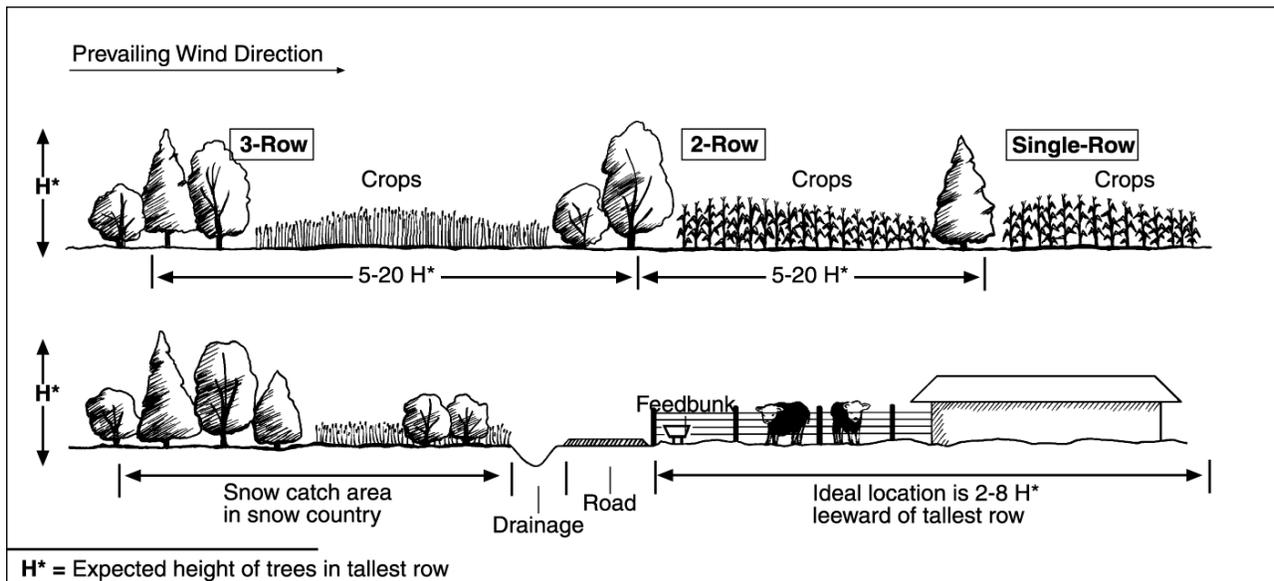
The density of the mature planting is an important aspect of screens or windbreaks. Densities vary but generally range from 20-65% depending on the purpose. Visual screens may have even higher densities. Consider using evergreen species for visual or aesthetic screens.

Determine the needed rows and consider the height of the tallest species (usually the center row). That height should be multiplied by 5 to 10 times depending on the purpose of the windbreak. The resulting distance is the area covered by the windbreak.

## 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 some areas windbreaks may need supplemental water for successful establishment.

Replacement of dead trees or shrubs will be continued until the windbreak/shelterbelt is functional. Supplemental water will be provided as needed. Thin or prune the windbreak/shelterbelt to maintain its function. Inspect trees and shrubs every 6 months and protect from adverse impacts including insects, diseases, or competing vegetation. Plantings should also be checked after storm events. The trees or shrubs will also be protected from fire and damage from livestock and wildlife. Periodic applications of nutrients may be needed to maintain plant vigor. Where practical, management activities should be performed outside the primary nesting season May 15 – Aug 1. An exception may be for mowing or cultivation to control vegetative competition or disease.



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.

## Windbreak/Shelterbelt Establishment – KY Job Sheet

<b>Client:</b>		<b>Date:</b>	
<b>Field(s):</b>		<b>Farm #:</b>	<b>Tract #:</b>
<b>Designed By:</b>		<b>Program:</b> (If applicable)	

Purpose (check all that apply)	
<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 and intercepting airborne particulate matter, chemicals and odors
<input type="checkbox"/> Manage snow deposition	<input type="checkbox"/> Delineate property and field boundaries
<input type="checkbox"/> Provide shelter for structures, livestock, and recreational areas	<input type="checkbox"/> Improve irrigation efficiency
<input type="checkbox"/> Enhance wildlife habitat by providing travel corridors	<input type="checkbox"/> Increase carbon storage in biomass and soils

Location and Layout		
<b>Width (ft.)</b> Include widths of maintenance areas next to outer rows:		
<b>Length (feet):</b>	<b>Area (acres):</b>	<b>Expected Height (H)</b> (Height of trees in tallest row):
<b>Total area of zone protected/sheltered</b> (acres; based on expected height and density of the windbreak/shelterbelt):		

Woody Plant Materials Information						
Row #	Species/cultivar	Stock Type	Planting Date(s)	Distance Between Plants Within Row (ft.)	Total Number of Plants for Row	Distance from This Row to Next Row <sup>2</sup> (ft.)

<sup>1</sup> Kind of Stock: Bareroot, Cutting (include size, caliper and age as applicable) Direct Seed, Balled and Burlapped, Containerized, Plugs

<sup>2</sup>Adjusted for width of maintenance equipment.

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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.

**Operation and Maintenance, Additional Specifications and Notes:**

Follow the procedures and methods for Operation and Maintenance as outlined in the section of this document entitled “Operation and Maintenance”. Additional Notes:

**Certifications**

<b>Job Sheet</b>	Prepared by:	Title:	Date:
	Approved by:	Title:	Date:
<b>Installation</b>	<b>Meets NRCS Standards and Specifications</b>		
	Certification by:	Title:	Date:

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