

Windbreak/Shelterbelt Establishment

North Carolina Practice Job Sheet 380

Prepared for: _____

Prepared by: _____

Farm: _____ Tract: _____ Date: _____



- Improve irrigation efficiency.
- Increase carbon storage in biomass and soils.

Practice Applicability

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.

DEFINITION

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

PURPOSE

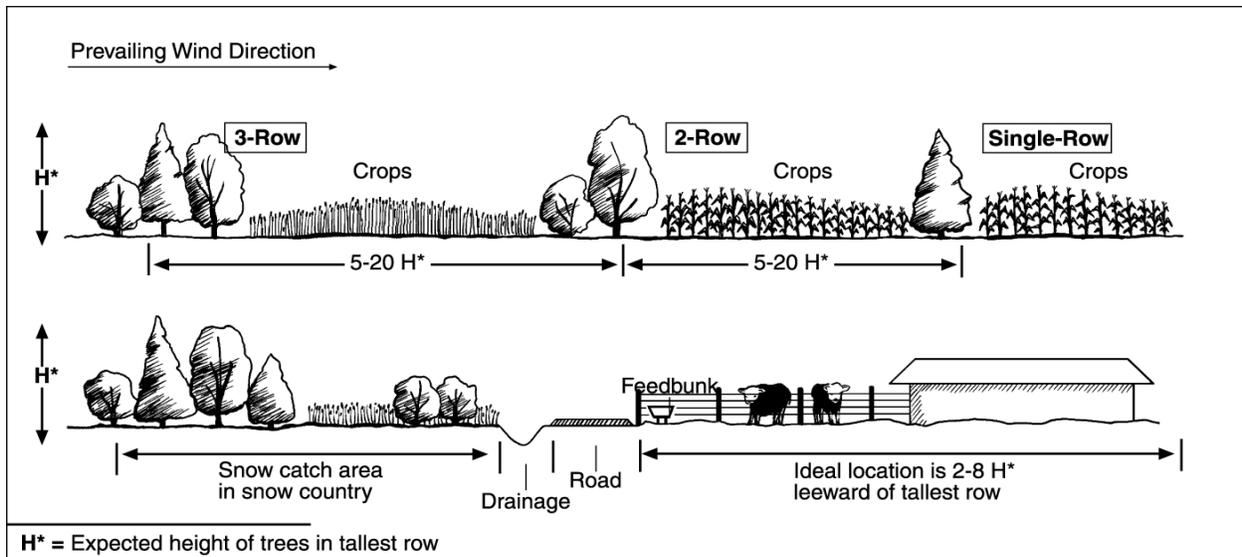
This practice is used to achieve one or more of the following purpose(s):

- Reduce soil erosion from wind and protect plants from wind related damage.
- Provide shelter for structures, animals, and people.
- Enhance wildlife habitat.
- Provide noise screens.
- Provide visual screens.
- Improve air quality by reducing and intercepting air borne particulate matter, chemicals and odors.

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 and aesthetics. Select native or adapted species that provide wildlife food or cover.

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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.

SPECIFICATIONS

Minimum documentation will include:

- Map showing location of windbreak.
- Plant materials or species to be planted.
- Plant spacing and arrangement.
- Number of rows and distance between rows.
- Site preparation and planting method(s).
- Site specific needs for soil amendments, cultural, pest management or other practices.
- Time or season of year to plant.
- Statement requiring compliance with all federal, state and local laws.
- Required operation and maintenance instructions.

OPERATION AND MAINTENANCE

- Replacement of dead trees or shrubs will be continued until the barrier is functional. As a guide:
 - First 2 years: replace any dead plants found.
 - After 2 years: replace plants to maintain at least 85% survival, and not leave two adjacent dead plants.

- Supplemental water or weed barrier fabric will be provided as needed.
- Thin or prune the barrier to maintain its function.
- Inspect trees and shrubs periodically and protect from adverse impacts including insects, diseases, competing vegetation, fire and damage from livestock or wildlife.
- Protect windbreaks from herbicide damage, especially from adjacent cropland. Use directed sprays and management strategies to control drift.
- Periodically rinse off vegetation when barrier is used as a particulate filter.
- Field windbreaks may need to be root pruned to reduce sapping effects on adjacent cropland. Prune with a ripper, chisel or subsoil shank to a depth of 2 feet or more, parallel to the windbreak at a distance of $\frac{1}{2}H$ of the highest trees at time of pruning. Root pruning can begin at age 4-6 years.
- Periodic applications of nutrients may be needed to maintain plant vigor.

Landowner _____ Field number _____

Purpose (check all that apply)	
<input type="checkbox"/> Reduce soil erosion from wind	<input type="checkbox"/> Improve air quality.
<input type="checkbox"/> Protect plants from wind related damage	<input type="checkbox"/> Increase carbon storage.
<input type="checkbox"/> Enhance wildlife habitat by providing travel corridors	<input type="checkbox"/> Provide noise screens
<input type="checkbox"/> Provide visual screens	<input type="checkbox"/> Improve irrigation efficiency.
<input type="checkbox"/> Provide shelter for structures, animals and people.	

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: Number of rows: _____.	

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					--

¹Bareroot, ²Container, ³Cutting; include size, caliper, height, and age as applicable. ⁴Adjusted for width of maintenance equipment. See Table 1 of NC Standard for selecting plants for Windbreak/Shelterbelt plantings.

Temporary Storage Instructions
<i>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.</i>
Site Preparation
<i>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.</i> Add soil amendments as follows: _____ Additional requirements: _____
Planting Methods
<i>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. Additional requirements including cultural practices:</i>
Operation and Maintenance
<i>Inspect windbreak/shelterbelt components periodically and protect from damage by fire, grazing, and wildlife so proper function is maintained. Replace dead or dying tree/shrub stock and continue control of competing vegetation by mowing, or spraying with an approved herbicide to allow proper establishment. Protect seedlings from spray drift. Install and begin supplemental irrigation if required. Monitor and control damaging pests (especially from rabbits and voles).</i> Additional requirements: _____

Additional Specifications and Notes:
Comply with applicable federal, state, and local laws during the installation, operation, and maintenance of this practice.