NRCS Natural Resources Conservation Service
Minnesota

Herbaceous Wind Barriers (603)

Agronomy Job Sheet **June 2010**

Definition

Herbaceous wind barriers consist of tall grass or other non-woody plants established in rows or narrow strips in a field and across the prevailing wind direction.

Purpose

Herbaceous wind barriers reduce soil erosion from wind, protect growing crops from damage by wind-borne soil particles, enhance snow deposition to increase plant-available moisture, and reduce particulate emissions to the air. Soil erosion is decreased due to a reduction in wind velocity at the soil surface. Wind-borne soil particles are trapped by the barriers, thereby reducing the potential for damage to adjacent crops. A reduction in wind velocities leeward of the barriers helps to trap snow, resulting in an increase in plant-available moisture.

Where used

Herbaceous wind barriers are located on land where crops or forages are grown. Barriers are applicable where it is desirable to trap wind-borne sediment; where wind-associated problems occur; where snow management is desired for improved moisture conservation; and where it is desirable to reduce soil particulate emissions to the air. Herbaceous wind barriers often are used where taller woody species would interfere with farming operations, such as within a field with a center-pivot irrigation system.

Resource management system

Herbaceous wind barriers are normally established concurrently with other practices as part of a resource management system for a conservation management unit. Examples include the residue management practices and cross-wind trap strips. Managing crop residues within the field can help reduce the movement of wind-borne soil particles and allow a greater distance between barriers. A cross-wind trap strip established along the windward edge of the field can induce deposition and reduce transport of wind-borne sediment and sediment-borne contaminants downwind.

Herbaceous wind barriers can also function as an important mitigation technique for other conservation practices, such as pest management. Plant species selected for effective wind barriers can function as habitat for beneficial insects and other wildlife and, therefore, reduce pest problems in adjacent crops.

Operation and maintenance

Both annual and perennial herbaceous wind barriers need periodic maintenance. Annual barriers need to be reestablished each year in a timely manner to insure effectiveness during the critical period(s) for which the barriers were designed. Gaps may develop in perennial barriers. These must be replanted as soon as practical to maintain barrier effectiveness. Herbaceous wind barriers often collect wind-borne sediment that reduces the health and function of the barriers. It is important to move and reestablish barriers periodically to redistribute sediment over the field as appropriate.

Specifications

Site-specific requirements are listed on the specifications sheet. Additional provisions are illustrated on the job sketch sheet. Spacing of the barriers is determined using the current NRCS wind erosion prediction technology. Specifications included in this job sheet are prepared in accordance with the NRCS Field Office Technical Guide. See practice standard Herbaceous Wind Barriers (603).

Herbaceous Wind Barriers – Job Sheet

Landowner_____ Field number_____

Purpose (check all that apply)	
☐ Reduce soil erosion from wind or wind-borne soil particles	☐ Enhance snow deposition to increase plant-available moisture
☐ Protect growing crops from damage by wind or wind-borne soil particles	☐ Reduce soil particulate emissions to the air

Individual Barrier Layout and Plant Materials Information	
Vegetation type: ☐ Annual ☐ Perennial	
Plant species:	
Number of plant rows per barrier:	Distance (inches) between plant rows (if more than 1):
Seeding rate (number of pure live seeds/foot of row):	
Seeding date:	Seeding depth (inches):
Planned effective barrier height (inches or feet):	
Total width of each barrier (inches or feet):	
Barrier Direction	

Barrier System Layout	
Total number of barriers:	Distance between barriers (feet):
Total area in barriers (acres):	Total amount of seed required (lbs of pure live seed):

Barrier Establishment
Site preparation and seeding:
Seedbed: *Firm and weed free.*
Fertilizer:
Mulching:
Other:

Operation and Maintenance
Pest management:
Other:

Herbaceous Wind Barriers – Job Sheet

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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