



## **Cerro Gordo's Cooperative Snow Fence Program**

January 2023



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While we can't keep it from blowing, there are ways to influence the wind that carries tons of blowing and drifting snow. Periodically, severe winter storms will create large snow drifts that close roads and driveways, isolate farmsteads and increase snowplowing. Many of these drifting problems happen in the same place year after year.

Although there are no foolproof methods of wind and snow control, properly designed and maintained snow fences can reduce or eliminate these problem areas. This publication discusses the benefits of snow fence, then examines the types used by Cerro Gordo County Secondary Road Department. Finally, it provides information about how you can get involved in the County's Cooperative Snow Fence Program.

**“National research has found that it costs 100 times more to plow snow than to trap it with a snow fence.”**

Source: Strategic Highway Research Program.

## Public benefits of snow fence

- Reduces blowing and drifting snow on roadways
- Stores snow at low cost
- Reduces the accident rate during snowy, windy conditions
- Creates safer travel conditions
- Decreases freezing and thawing effects on the roadway
- Lowers snow removal cost
- Increases visibility

## Benefits to landowners

- Improves access to farmsteads and rural areas
- Helps reduce soil erosion
- Provides a service to your community
- Conserves wildlife
- Can increase yield by retaining moisture and reducing drying effects of the wind

## Purpose of a snow fence

The purpose of a snow fence is to keep as much snow off the roadway as possible for safety and cost efficiency. Drifts that would normally fall on the roadway now form at the location of the snow fence.



## How does a snow fence work?

Snow fence forces the wind to go around and through the fence, causing the wind to lose energy and speed. The snow particles suspended in the fast-moving air come to rest as the speed slows. This forms a drift behind or in front of the snow fence. The height of the fence, and amount of snowfall common to the area, determines how much snow a fence can trap.

## Characteristics of snow fence

To be effective, snow fences must be properly designed and located with respect to the highway in need of protection. Not all roadways will benefit from snow fence. Snow fence is used by the County at critical locations where it can effectively trap and control blowing and drifting snow. A fence placed in the wrong location may not do an adequate job of protecting the road and may even cause snow to accumulate on the roadway.

### **Height**

Any standard size fence will help stop drifting snow. However, the taller the fence - the more snow will be trapped. One row of eight-foot fence is recommended for maximum efficiency. Multiple rows of shorter fence can also be used. One eight-foot fence can trap as much snow as five rows of four-foot fence. Height should be sufficient to store blowing snow during an average to above average snowfall year. The average snowfall for Iowa is 32 inches; the range is 21.9 to 42.4 inches.

### **Length**

Snow fence length determines the maximum amount of area that can be protected from blowing and drifting snow. Snow storage at the ends of a barrier is significantly less than near the center. It is recommended that the ends of the fence extend approximately 30 degrees beyond the desired protection limits to allow for wind variability.

**Set back distance**

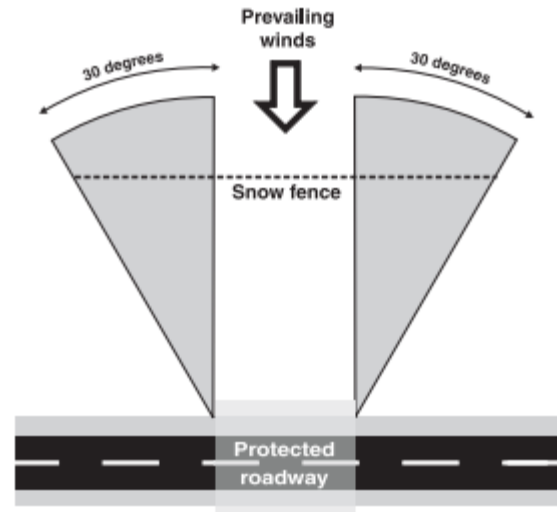
Fences should be set back from the edge of the roadway a distance of 35 times the height of the fence. For instance, if the snow fence is eight feet tall, it should be placed 280 feet back from the edge of the roadway. (8' high x 35 = 280-foot setback.) Living snow fence should be set back from the edge of the roadway a distance of 15 times the expected height of the mature fence.

**Placement**

The fence should be placed as parallel to the road and perpendicular to the prevailing wind direction as possible.

**Helpful fence hints**

- Fences should contain 40 to 50 percent open space to be most effective.
- Horizontal gaps are the preferred design.
- A gap of six to eight inches is needed between the ground and the fence to reduce the tendency of fences to become buried in drifts, which reduces storage capacity



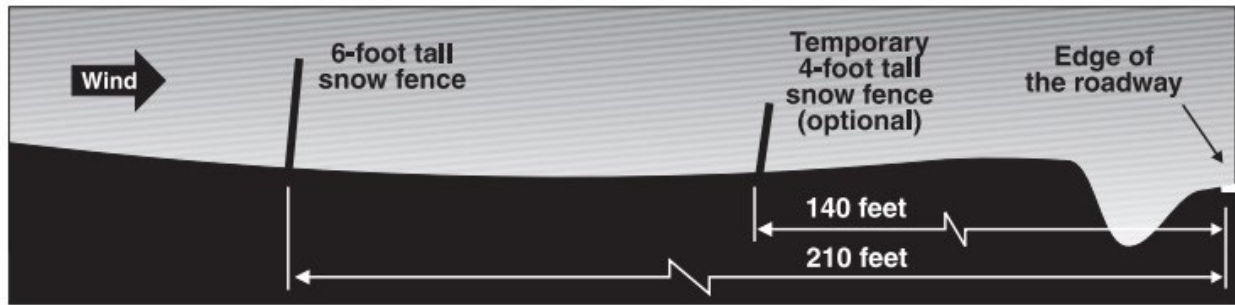
**It is recommended that the ends of the fence extend 30 degrees beyond the desired protection limits.**

**Types of snow control**

- Structural, either permanent or temporary
- Standing corn or stack of round bales
- Living, using either trees, shrubs, tall grass, or combination of types

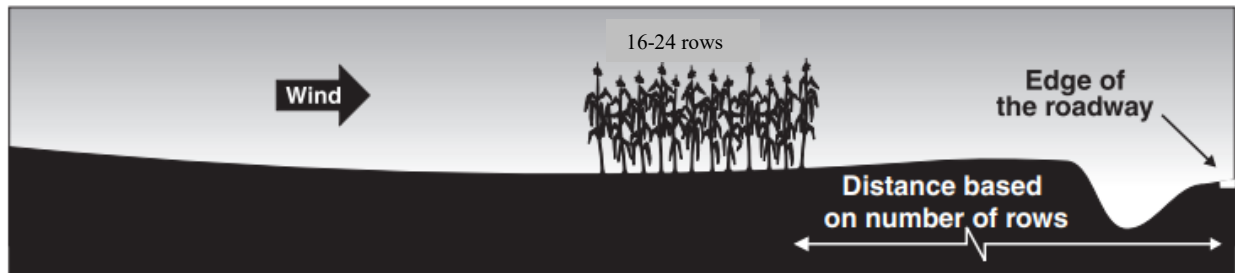
Type	Description	Advantages	Agreement length
<b>Structural, permanent</b>	Six- to eight-foot tall fence consisting of two wooden posts, lightweight plastic fence and 2" x 4" supports.	Very low maintenance. Takes up as little as one-foot width of land.	10 year minimum.
<b>Structural, temporary</b>	Four-foot tall portable plastic fence or wooden fence.	Installed after harvest and removed before planting.	Fall to Spring.
<b>Standing corn</b>	One section of 16 to 24 rows of corn	Can reduce soil erosion. Public service organizations benefit from picking by hand. Wildlife habitat.	Fall to Spring.
<b>Living trees, shrubs or native grasses</b>	Two or more rows of trees or shrubs, or a combination of both.	Wildlife habitat. Reduces soil erosion. Hunting ground.	10 year minimum.
<b>CRP living snowfence</b>	Two or more rows of trees or shrubs, or a combination of both with 75-100 foot native grass buffer.	Wildlife habitat. Reduces soil erosion. Hunting ground.	10-15 years per CRP program guidelines.

## Structural snow fence



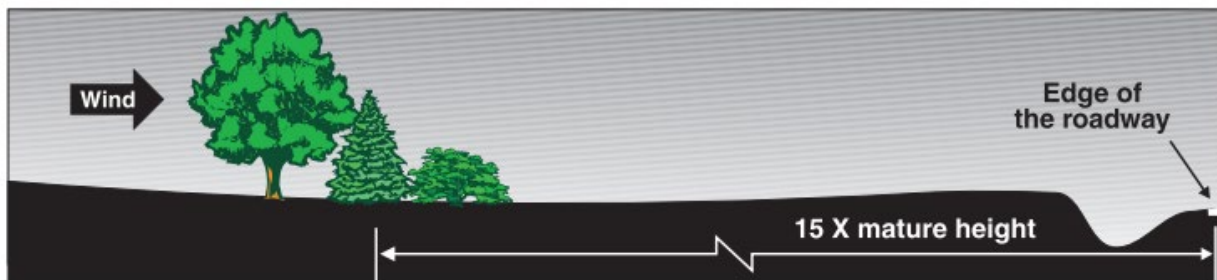
The conventional slatted, four-foot-high snow fence and the six-foot high board fence have been used in Iowa in the past. The preferred height for a single row fence is six feet. The height of snow fence required depends on the annual snowfall. Most places in Iowa will receive great benefits from a four- to six-foot high fence.

## Standing corn



This type of snow barrier affords the landowner more control over the materials used on their property since they plant their own fields. (However, advance planning is required because the rows of corn need to be planted parallel to the roadway.) In the past, landowners have arranged to have service organizations pick the corn by hand and sell it to benefit their organizations. Events such as this may be tax deductible and offers a community service for the area. 6' tall corn will require 210' setback.

## Living snow fence



Living snow fence is pleasing in appearance and requires little maintenance. Living snow fences work the same as those already mentioned. They too need to be placed back from the roadway a distance of 15 times the mature height of the plant. Species are selected and placed to create the space needed for a snow fence when the plants reach maturity. The goal is to establish a living fence that not only survives and grows fast, but also remains effective over a long period.

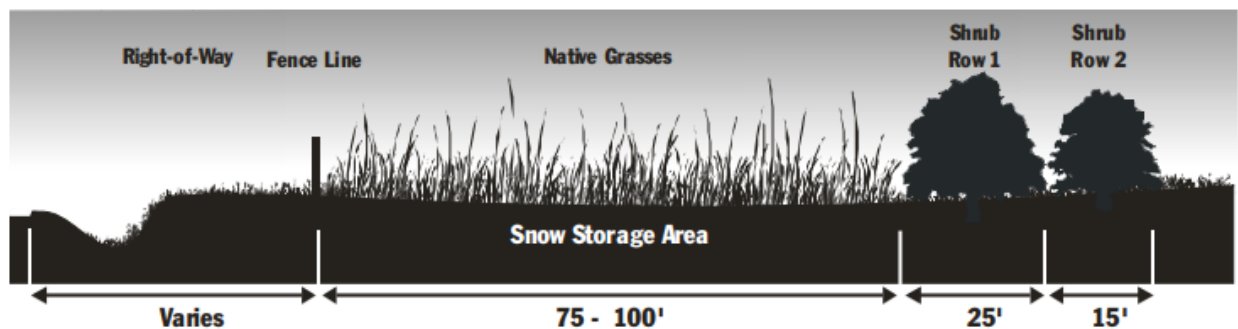
### *Deciduous trees, shrubs and native grasses*

Windbreaks made of trees, shrubs and native grasses have been used for years. Not only do trees, shrubs and native grasses provide wind protection, but they add beauty to the roadway and create a habitat for wildlife.

Trees and shrubs should be planted in rows running parallel to the roadway. Two rows or more provide the most effective wind protection. Native grasses should be at least 100 feet deep running parallel to the roadway. Species selection is determined by the soil type and fertility, as well as the surrounding vegetation. Because soil types vary around the state, each living snow fence may be custom designed to suit that area. The availability of funding for living snow fence varies from year to year.

## **Conservation Reserve Program (CRP) Living Snow Fence**

The CRP now includes a living snow fence program that allows landowners to receive annual payments for up to 15 years if they agree to plant two rows of trees or a combination of trees and shrubs along with a 75–100-foot buffer of native grasses. More information about this CRP living snow fence program is available at the local Farm Service Agency, Natural Resource Conservation Service office.



## **How to get involved**

Cerro Gordo County wishes to expand participation in the Cooperative Snow Fence Program. The program establishes agreements with private landowners for the use of snow fence. Landowners have been, and continue to be, the keys to the success of the program.

If you would like to learn more about the program and benefits of snow fences, contact our office at

**641-424-9037 or [cgcengineer@cgcounty.org](mailto:cgcengineer@cgcounty.org)**