

Over The Wire

A Beef Cattle E-Letter for Area Cattle Producers

Windbreaks for Cattle

By: Jim Church
University of Idaho Extension

Cow Comfort!

The wind likes to blow on a regular basis in many areas of the Pacific Northwest during the winter months. Couple this wind with cold temperatures and wet conditions and the wind chill can cause a great deal of stress for cattle.

Cattle can stand cold temperatures as long as there is no wind. When wind and cold temperatures are combined, you have the perfect recipe for cold stress which can have a detrimental affect on cattle health, performance and profitability. As a general rule of thumb, a 20 mile per hour wind is equivalent to an additional 30 degrees of cold.

Cattle experiencing cold stress will require more energy in their diets to generate body heat and maintain their proper core body temperature. In fact for every 10 degrees decline in temperature below 30 degrees F., due to wind chill, the energy requirement for a cow goes up 13%, which increases winter feed costs.

Cold stress can also contribute to an increase in sickness in the herd, thus increasing veterinary and treatment costs.

Therefore, cattle producers ranching in windy areas that do not currently have windbreaks, should seriously consider providing them for their herds.

What Type of Windbreak Will Work?

The cheapest way to go would be to use natural windbreaks on the ranch if they are available. Dense brush in draws make excellent windbreaks. However, these areas may not be available when the cattle are being fed during the winter feeding period.

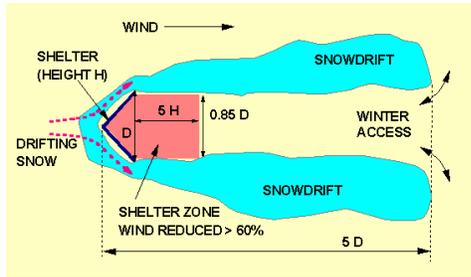
There are several permanent and temporary windbreak designs that work well to block the wind. In snowy areas, the windbreak has to be designed to divert the snow and not pile it up on the cattle as they stand next to the windbreak.

The following pictures show examples of three windbreak designs. The first is a semi-circular design, the second picture found on the next page is an L-shaped design and the third also on the next page is a diagram of a V-shaped design.



Photo courtesy of Montana State University Extension.

L-Shaped Design

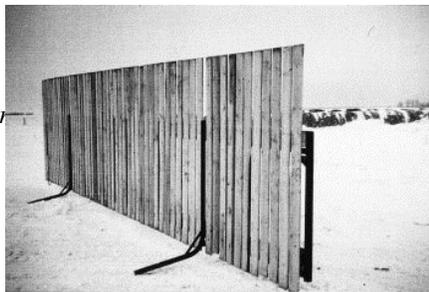


V-Shaped Design

Photos courtesy of Montana State University Extension.

These three designs do a nice job of directing the snow away from the cattle. Of course a straight line fence will also work as long as the windbreak fence is not solid sided.

Straight line ter



Building the Windbreak Fences

The windbreak fence needs to be porous meaning that some air should be able to flow through the windbreak fence. With a solid fence made of something like plywood, the wind will go up and over and then dip right back down again. If snow is drifting, it will drift in front of the fence and directly behind the fence. If cattle were standing behind the fence, they would be covered with snow.

If the fence has slats, some of the air goes through the fence at a much reduced speed, which gives wind and drift protection in an area 8 to 10 times

larger than the height of the fence. So for instance, if you had a 10 foot high windbreak fence with slats, the area behind the fence protected from the wind would extend approximately 100 feet from the fence.

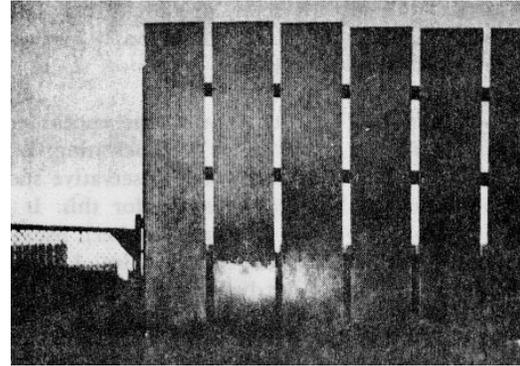


Photo courtesy of North Dakota State University Extension Beef Cattle Handbook.

Example of a windbreak fence with spaces between the planks to allow a small amount of air through the fence.

How Much Porosity is Needed?

What? Porosity is the amount of space between the planks that allows the air to flow through the windbreak fence. The experts recommend that the windbreak fence should have a porosity of 25 to 33%.

To obtain a 25% level of porosity, 6 inch boards should be spaced 2 inches apart. For 33% porosity, 6 inch boards should be spaced 3 inches apart.

Fence Height—How Tall?

It is recommended that the windbreak fence be at least 10 feet tall. If you remember, the downwind area that is protected from the wind will be 8 to 10 times the height of the fence, therefore with a 10 foot fence, we will have a protected area of 100 feet behind the fence.

Also, as a general rule of thumb, allow one foot of fence, in length, for every cow.

Temporary Windbreaks

In Canada they are doing a lot of work with temporary or portable windbreaks. These portable models are built with a variety of materials but the most common is made of a heavy duty steel tubing frame with 2x6 planks attached to them.

The key to portable windbreaks is they must be build very stout to withstand the wind, the cattle rubbing on them and stay together when they are moved.

The typical portable windbreak is 10 feet tall. In order to stay upright against the wind, the base of the portable windbreak must be at least the same width or greater than the height of the fence. So a 10 foot tall portable windbreak would need a 10 foot wide base. The picture on the previous page is an example of a portable windbreak.

What Have We Learned?

1. Wind coupled with cold temperatures and wet conditions can cause cold stress.
2. A 20 mile per hour wind is equivalent to an additional 30 degrees of cold.
3. For every 10 degrees decline in temperature below 30 degrees F., the energy requirement for a cow goes up 13%.
4. Windbreaks reduce cold stress in cattle.
5. Several windbreak designs are available. Consider snow drift patterns when building a windbreak.
6. Windbreak fences should not be solid.
7. A porosity of 25 to 33% is recommended.
8. A windbreak fence should be at least 10 feet tall. This will provide 100 feet of protection behind the fence.
9. Allow 1 foot of fence length per cow.

Contact Information: Jim Church, 320 West Main, Grangeville, Idaho 83530; email: jchurch@uidaho.edu; phone: 208-983-2667.

References:

Quam, Vernon, et al., Windbreaks for Livestock Operations. University of Nebraska, Lincoln, 1994.

Johnson, Dexter., Windbreak Fences. North Dakota State University, Beef Cattle Handbook, BCH-10200.

Warm Cows & Cool Breezes. Montana State University Extension Beef Cattle Webpage Publication.

Klein, Lorne, Portable Windbreak Fences., Alberta Canada Agriculture, Food and Rural Development Department. June 2002.

To enrich education through diversity, The University of Idaho is an equal opportunity/affirmative action employer and educational institution.