Time to make plans on renovating windbreaks

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A windbreak is a precious thing. It is a promise in the fall, a lifesaver and a place of warmth in winter, a sign of hope in spring, and a place of loveliness in the dry heart of summer.

A windbreak is defined as any barrier (natural or artificial) that reduces troublesome winds by creating a wind shadow to the leeward (downwind) side. Its major function is to reduce the velocity of the wind.

Windbreaks and tree plantings slow the wind and provide shelter and food for wildlife. Trees can shelter livestock and crops; they are used as barriers to slow winds that blow across large cropped fields and through farmsteads. Windbreaks can be beneficial in reducing blowing and drifting snow along roadways.

Farmstead and field windbreaks and tree plantings are key components of a conservation system. They also help prevent dust particles from adding to smog over urban areas

Successful windbreak plantings depends on proper establishment and care during the first few years after planting. Time spent in site preparation, weed control, and replanting is repaid many times during the lifetime of the windbreak. Take no shortcuts in the planning and establishment of your windbreak. (source, University of Nebraska Extension)

Windbreak Effectiveness

A windbreak must be 2.5 feet or higher to have a significant effect. The kinds of materials that can be used for a windbreak include trees, shrubs, tall perennial or annual plants such as sunflowers or grass, board fences, piles of debris or any material that can be stacked to s sufficient height to create the desired wind shadow.

It is estimated that existing trees around houses in the U.S. save two billion dollars in energy costs each year. By reducing fossil fuel use, windbreaks can also protect the environment by improving air quality and slowing the increase in atmospheric carbon dioxide that could lead to changes in global climate.

Forest service studies as long ago as the 1930s show that windbreaks save energy for heating buildings. Savings by windbreaks 50 feet from the north and west sides of the house increased from 14 percent in the southernmost city (Wichita Falls, Texas) to 19 percent in the northernmost city (Minot, Minn.). Windbreak effects on air conditioning contributed in the savings in the south.

In the Great Plains, but not the northeast, a windbreak on the south side of the house also was effective.

Windbreaks can also serve as a natural snow fence. Living snow fences are rows of trees and shrubs planted to control blowing snow and the deposition of snow drifts. Living snow fences provide safer driving conditions on highways. They control blowing snow conditions which come up suddenly and cause visibility problems.

It is estimated that tree and shrub plantings are approximately 10 times cheaper to install and maintain than slatted snow fences. The average lifetime of a living snow fence is 35 to 50 years with regular weed control while young.

Protecting Livestock

Feedlot and livestock windbreaks are used primarily to protect livestock from wind, wind borne soil, and wind borne snow. The protection afforded by these windbreaks can significantly reduce stress on the animals and feed requirements.

The results are better animal health, lower mortalities, and lower feed costs and other benefits such as protection of farm buildings, ease in feeding, improved wildlife habitat, and beautification of the area can also be attributed to windbreaks.

The effect of cold temperatures on beef animals is one of an increased need for energy. Animals must increase their intake of feed as temperatures fall below certain critical temperatures of wind chill indexes to get the energy needed to keep their body temperatures within a specific comfort range.

Canadian researchers found that range cattle on winter range required a 50 percent increase in feed energy for the normal activities. They also found that an additional 20 percent increase in feed energy was needed to overcome the direct effects of exposure to a combination of cold temperatures and wind.

Researchers at Purdue University found that the energy requirements for cows in good condition increased 13 percent for each 10 degree drop in wind chill temperature below 30 degrees. Cows in poor condition needed 30 percent more energy for a similar 0 degree drop in wind chill below 30 degrees.

Renovating Windbreaks

Windbreaks are an integral part of many farms and ranches and provide critical protection for farmsteads, livestock and crops. Unfortunately, many windbreaks planted in the 1930s and 1940s are losing their effectiveness due to age, poor health or neglect.

In some cases, the windbreak no longer has the necessary density to provide winter protection. In other cases, overcrowding may have reduced the health and vigor of the windbreak. Whatever the reason, many older windbreaks need renovation.

All windbreaks, even well-designed ones, need regular maintenance in order to maintain their overall structure and to continue to function as effective wind barriers. While maintenance should be done throughout the life of the windbreak, windbreak renovation is usually restricted to older or neglected windbreaks.

With careful planning and follow-through, renovation of your windbreak should lead to the development of a healthy and functional windbreak.

Assuming that you have decided you have a problem with your windbreak, there are three questions you need to answer before you begin a renovation project.

1. What are the objectives of your windbreak planting?
2. What is the condition of your windbreak?
3. What techniques could you use to reach your objectives?

What are your objectives? What is the primary purpose of your windbreak? Does your windbreak still meet that objective? Windbreaks designed for snow distribution, wind erosion control, or farmstead protection, have different design requirements and require different renovation techniques.

In addition to your primary objectives, determine any secondary benefits you want in your windbreak. Is snow management a concern? Do you want to attract more wildlife? Consider

your overall farm or ranch operation. Is the original design still meeting your needs? Is the windbreak located in the right place? Remember that the windbreak that will result from your efforts could be there for the next 50 years. Clearly identifying your objectives is important because it will help you determine the best species, the best design and the optimal location for the windbreak.

What is the condition of your windbreak? Walk through your windbreak and determine the overall tree health. Are there dead or dying trees? Are there insects, diseases or other problems that should be addressed? Are there gaps in the windbreak? Does the windbreak provide enough wind protection to meet your needs?

What techniques are available? There is a pamphlet “Windbreak Renovation” available at your local NRCS office that answers questions of where to begin and it also lists eight renovation techniques plus how to remove trees from your windbreak.

Although not guaranteed, the success of all properly planned and prepared tree planting sites significantly increases the establishment success of your windbreak planting.

Renovating a windbreak is a difficult task. Help in assessing your windbreak and determining the best renovation techniques is available from your local forester, district conservationist or extension educator.

Financial assistance cost share is often available with Nebraska Soil & Water Conservation Program (NSWCP) Money. This is managed by the Upper Republican NRD.NRCS can assist you with a design for a 2013 planting. Call this summer for an appointment. For more information about NRCS programs, visit the NRCS web site at www.nrcs.usda.gov or call your local NRCS office in Grant at (308) 352-4776.

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