

Get the Most Out of Your Windbreak: Protecting Your Investment

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Windbreaks (also called shelterbelts) protect buildings, crops and livestock; provide habitat for wildlife; reduce air and noise pollution; and much more.

Planting a new windbreak or renovating an old one is a major investment that has major benefits. You spent a lot of time and money in protecting and enhancing your land with a windbreak. Make the most of that investment.

Properly designed and planted windbreaks can provide a significant return on the money spent to plant and care for them. However, you need to provide proper planning and maintenance to maximize these benefits.

Windbreak maintenance improves individual tree health and vigor, which means faster growth, longer life, and fewer pest and disease problems. Maintenance also improves the overall structure of the windbreak to ensure that it is doing its job – protecting and adding value to your property.

Consider the time and money required for maintaining your windbreak before it's even planted or renovated. Like tune-ups for your vehicle, windbreaks need periodic repairs and adjustments to work properly. Occasional maintenance activities help prevent costly and time-consuming problems down the road. These activities also can reduce or eliminate the causes of many common complaints about windbreaks, such as slow growth, high tree deaths, branches dropping into fields and frustrating snow drifts.

Big windbreak maintenance projects do not need to happen every year to be beneficial. Like all living things, windbreaks grow and age. Your windbreak needs proper care throughout its life to be healthy, and the type of care changes as it matures and ages. And like most living things, your windbreak will need more care when it is very young and again when it is very old.



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Windbreak Checkup

The first, and most important, step in maintaining your windbreak is also the easiest. Walk or drive along the windbreak at least once a year to give it a “checkup.” Keep an eye out for dead, diseased or damaged trees.

- Are the trees getting enough water naturally or from irrigation?
- Are trees getting enough sun or too much sun?
- Do you see signs or symptoms of disease?
- Do you see damage from insects, livestock or wildlife?
- Are weeds choking out young trees?

These checkups will help you spot problems before they become serious or before they even occur.

Water and Nutrients

Irrigation

Windbreak trees and shrubs may need supplemental watering for two to five years after planting. Proper watering during the first two years after planting is especially important for the survival and long-term health of the windbreak.

Give each seedling 1 to 2 gallons of water once every one to two weeks if the windbreak has not received more than an inch of rain in that time.

Water enough each time so the whole root system is moistened, but allow the soil to dry slightly between waterings.

Watering too often with only a little water can stunt the development of a large root system. The exact amount of water needed will depend on the soil, tree type, weather and ground cover. Reduce watering in the fall to allow the trees to go dormant for winter.

Fertilizer

Generally, fertilizing windbreaks is not recommended. The possible improvement in tree growth is usually not worth the cost or effort required. Fertilizing may be practical only in small, high-value windbreaks with proven soil nutrient deficiencies.

Controlling Weeds

Plants compete for water, nutrients, sunlight and room to grow. Trees are often healthiest when many types of plants are growing together, but newly transplanted or pruned trees and shrubs are not strong enough to compete with other plants without help.

The physical stress of being planted or heavily pruned makes the trees less competitive against other plants, and these plants should be reduced. This can be done by killing or out-competing unwanted plants. You have many ways to do this, so contact your local Natural Resources Conservation Service or Soil Conservation District, the NDSU Extension Service or North Dakota Forest Service office for more information on which methods may work best for you.

Weeds commonly are controlled by mechanically damaging or slowing them, spraying herbicides on them or blocking their growth. You can use several methods in the same windbreak to better control weeds.

Mechanical Weed Control

Shallow cultivating between tree rows two to three times a growing season kills or slows most competing plants. Do not cultivate deeper than 2 to 4 inches or closer than 3 feet to the base of trees. This reduces damage to shallow tree roots and preserves soil moisture.

Stop cultivating in the fall so that trees have time to slow their growth and go dormant for the winter. Cultivation should be limited or not used at all on fine soils prone to wind erosion.

Carefully mowing within the rows slows the growth of weeds closest to the trees. Mowing also can be used to reduce weeds between the rows if cultivation is not possible or too expensive. Mowing between rows is most effective when a cover crop or nonsod-forming grass is planted between the rows to compete with weeds.

Stop mowing in the fall to encourage trees to go dormant for winter. Leaving weeds in the fall also protects soil throughout winter, provides winter cover for wildlife and can protect young trees from harsh winter winds.

Chemical Weed Control

Chemical weed control is a good option where cultivation is difficult or when you do not have the time or equipment to cultivate. Most weeds can be controlled with only one to two herbicide applications a year.

Many herbicides for controlling a wide range of weeds are on the market. Different herbicides also target weeds of different ages.

Be sure to follow the manufacturer's instructions when using herbicides. This ensures that you use the right herbicide at the correct rates. Approved herbicides come and go, so check with your county Extension agent or other certified/licensed herbicide specialist for up-to-date information.

Barrier Weed Control

One of the most effective ways to control weeds is to use a barrier to physically prevent them from growing near the trees. Many types of natural and synthetic mulches and weed barriers are available. Each have their benefits and disadvantages, so compare your options before selecting one.

Woven weed barrier fabric is the most commonly used option for blocking weeds and increasing soil moisture in North Dakota. Mulches need to be reapplied every few years because they break down, whereas properly installed weed fabric can be effective for more than 10 years. However, you may need to remove weed fabric partially or completely after 10 years so that it does not restrict tree growth.

Also, you still must use other methods to control weeds at the base of trees. The tree holes in the fabric may need to be widened as trees grow because the fabric can strangle trees if the holes are not large enough to allow the tree trunks to grow.

Thinning and Pruning

Windbreak trees and shrubs also compete with each other. If this competition is too high, then trees will grow slower, be more vulnerable to diseases and pests, and may die younger. Some healthy trees may need to be removed from the windbreak about every 10 years to thin rows and keep the remaining trees healthy and vigorous. Dead or very unhealthy trees should be removed every three to five years. Tree branches that are significantly overlapped with branches of a nearby tree may need to be pruned back to the tree trunk.

Be careful not to create large gaps in the tree canopy when pruning. Dead or damaged branches on otherwise healthy trees also should be pruned back to the trunk. The whole tree may need to be removed if too many branches are overlapping, diseased or damaged.

Clean your pruning tool between cuts if you are removing diseased trees or branches. Dirty or dull pruning tools are more likely to spread disease from one tree to another.

Replanting Gaps

Gaps can develop if too many trees die or have to be removed in a section of your windbreak. Not only does this leave an area of your property unprotected, but winds can cause more damage near these gaps because high winds are funneled through them. Gaps should be replanted as soon as possible.

Underlying soil problems, such as flooded soils, high pH (alkalinity) and salinity are common causes of gaps in windbreaks. You may need to plant different tree species in these gaps for the windbreak to be a solid barrier. Check your soil type at the nearest Soil Conservation District office to match your soil with suitable tree or shrub species.

Protecting Windbreaks From Damage

Protect From People

Damage caused by people can be the most costly problem your windbreak faces, but it also is the easiest to prevent. Most damage can be prevented simply by paying extra attention when operating equipment or spraying chemicals near the windbreak.

Tractors, mowers and weed-whips can cause serious injuries to the thin bark of young trees if not operated carefully. Heavy equipment also can compact soil near windbreaks, crushing roots and preventing them from developing.

Chemical damage can be as serious as physical injuries. Pesticides (including herbicides) and other chemicals can slow or deform tree growth and kill plant tissue. Be aware of wind speed and direction when spraying potentially harmful chemicals to limit damage. Also carefully follow chemical label instructions. Following instructions not only saves you money and reduces unplanned damage to your windbreak; it also is the law!

Protect From Livestock and Wildlife

Livestock must be kept out of your windbreak. Livestock benefit from the protection windbreaks provide, but they can cause serious damage if allowed into the windbreak. Livestock compact soil, trample stems and roots, browse trees and break branches. Wildlife also can cause serious damage to a windbreak, but they are more difficult to control than livestock.

You can use tall fencing, repellents and tree tubes to limit damage from a variety of wildlife. Individual tree shelters (tree tubes) provide protection from wildlife ranging from large game species to small rodents. These shelters also can help protect seedlings from other types of damage, such as insect attacks, chemical drift, harsh weather, and damage from mowers or other equipment.

Protect From Insects and Diseases

Insects and diseases usually are not a problem for healthy trees because the trees can defend themselves and grow over wounds without help. Trees stressed from poor site conditions, weed competition and animal or herbicide damage are more likely to be attacked and injured by insects and diseases. The best way to protect your windbreak from these pests is to keep your trees healthy by following the recommendations in this publication.

However, insects and diseases can cause problems even in healthy stands if not noticed early. Look for diseases and pests during the yearly “checkup” to spot them before they become serious. If certain diseases or pests are common in your area, choose tree species that are resistant to these problems when planning the windbreak and planting replacements.



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