



Extension FactSheet

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Shelterbelts for Wildlife

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Shelterbelts (also known as windbreaks) are rows of strategically placed evergreens, deciduous trees, and shrubs. They became common in the 1930s in order to prevent wind erosion on American farmlands. The Food Security Act of 1985 approved shelterbelts as a cover type for areas not being farmed. Today, farmers participating in the Conservation Reserve Program (CRP), sponsored by the United States Department of Agriculture (USDA), receive rental payments for land used to support shelterbelts and cost-sharing for planting the trees and shrubs that provide cover. Well-designed shelterbelts offer valuable wildlife habitat and offer several benefits to property owners. However, these gains are not exclusive to agricultural lands and the farmers that maintain them. Homeowners and land managers also can benefit from establishing a shelterbelt.

Benefits to Property Owners

Maintaining wildlife habitat or other natural areas can be a cost-effective approach to land management. Planting a shelterbelt creates habitat for wildlife and provides the landowner with economical benefits as well. Shelterbelts guard fields and buildings by reducing exposure to wind. They lessen soil erosion, help retain moisture in the ground, and protect water quality. Properly designed shelterbelts, placed near your home or other buildings, offer cooling shade and reduce air conditioning costs throughout the warm season. Deciduous trees in a shelterbelt lose their leaves in the fall, allowing

solar heat to raise the temperature of nearby structures. During the winter months, they serve as windbreaks, reducing heating costs by as much as 30 percent. The shrub layer of a shelterbelt catches drifting snow, lessening the need to invest time and money in snow removal. Furthermore, planting trees on your land usually increases property values by thousands of dollars.

People also can benefit from the animals that share the shelterbelt. Wildlife populations can be very entertaining, and shelterbelts increase opportunities for wildlife-viewing. Unique wildlife observations and experiences can be shared with family members, neighbors, and friends. Landowners may wish to hunt on their property. Healthy and abundant wildlife in these areas can be harvested following local regulations. Additionally, insectivorous birds residing in a shelterbelt will feed on many nuisance pests, perhaps reducing your need to use costly chemical insecticides on your property.

Benefits to Wildlife

Shelterbelts have long protected livestock from harsh weather conditions, but they also benefit many types of wildlife. A shelterbelt provides basic wildlife habitat requirements: cover, space, and even food. Birds such as mourning doves, northern bobwhites, ring-necked pheasants, and various species of waterfowl regularly roost, feed, and nest in windbreaks. Small mammals like the eastern cottontail rabbit will use windbreaks for cover. White-tailed deer take advantage of windbreaks, but may not find enough shelter for year-round usage. Professional biologists can make management recommendations to best provide habitat for the wildlife of most interest to you. In general, shelterbelts are attractive to wildlife, without drawing in many mammalian agricultural pests.

Shelterbelt Design

Consider four basic factors when designing a shelterbelt: 1) orientation of the shelterbelt in relation to the prevailing winds, 2) shelterbelt width, 3) plant and density arrangement, and 4) species of plants selected.

Typically, west and northwest winds are the harshest in Ohio. Consequently, evergreen trees should be planted approximately 30 feet away from the north and west sides of



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a building, but no more than 300 feet from the area to be protected. Deciduous trees are most beneficial on the southern and western ends of buildings. Shrubs can be planted within a few feet of a house or other structure.

The width of the shelterbelt can vary depending on the amount of space available. A shelterbelt comprised of ten or more rows is ideal, but some benefits can be realized with just a single row of trees. If possible, plant at least three rows of trees, with trees in the center row staggered with trees in the outside rows.

The structure of a shelterbelt is very important. Following certain guidelines regarding the density and arrangement of the plants will maximize the benefits to the landowner and wildlife. Conifers should be planted facing the north or west, allowing 15 to 18 feet of space between spruces. The innermost rows of a shelterbelt should consist of tall, deciduous trees. Use the smaller trees and shrubs on the leeward side. Shrubs planted in the outermost rows will catch drifting snow. The resulting vertical structure of the shelterbelt directs wind over the area to be protected.

Many different plant species can be used in the shelterbelt design. Although non-native species such as Austrian pines (*Pinus nigra*), red pines (*Pinus resinosa*), Norway spruces (*Picea abies*), and Canadian spruces (*Picea glauca*) perform well in shelterbelts, wildlife will generally benefit most from native trees. Native conifers to consider are eastern white pines (*Pinus strobus*), eastern redcedars (*Juniperus silicicola*), and eastern arborvitae or northern white cedars (*Thuja occidentalis*). Firs are not recommended because of their heat sensitivity and soil requirements. For a single row windbreak, eastern arborvitae, eastern redcedar, or Norway spruce are often recommended. Also try to plant deciduous trees native to Ohio, including red oaks (*Quercus rubra*), pin oaks (*Quercus palustris*), bur oaks (*Quercus macrocarpa*), red maples (*Acer rubrum*), sugar maples

(*Acer saccharum*), black tupelos (*Nyssa sylvatica*), sweetgums (*Liquidambar styraciflua*), eastern redbuds (*Cercis canadensis*), honeylocusts (*Gleditsia triacanthos*), and flowering dogwoods (*Cornus florida*).

Shelterbelt Maintenance

Once a shelterbelt is established, it requires very little maintenance. In fact, it is recommended that *snags* (standing, dead trees) and dead limbs remain unless they pose an immediate danger. The dead wood provides excellent wildlife benefits. Windbreaks should be protected from grazing animals and from manure run-off that will kill evergreens. If needed, a fence can be installed approximately 10 feet from the windbreak in order to keep out livestock. Also to maximize the effectiveness of the windbreak, construct roadways angled, curved, or around shelterbelts, but not straight through them.

The USDA recommends windbreak plant species suitable for local and regional planting conditions. Local Soil and Water Conservation Districts (SWCD) and state forestry departments can offer advice in designing your shelterbelt and provide most of the plant species you will need.

References

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