

Windbreaks for Wildlife

Trees and shrubs planted in windbreaks have many on-farm benefits such as reducing energy consumption, controlling odor, protecting buildings and livestock from snow and wind, and improving aesthetics. Another rewarding benefit of windbreaks is to provide habitat for wildlife. In this fact sheet, we discuss ways to improve the suitability of windbreaks for wildlife while retaining other desired benefits.

Wildlife in windbreaks

Wildlife need two key elements from any habitat: sources of food and places for protection from weather and predators. Well designed windbreaks can provide both these resources while retaining other important functions around homes and farmsteads.

Birds make extensive use of windbreaks, nesting in trees and shrubs, eating soft or hard mast (fruits and nuts) produced by shrubs during fall and winter, seeking shelter from temperature extremes during winter or summer, and escaping predators throughout the year.

Mammals, like deer and cottontail rabbits, will feed on some fruits or stems and twigs of shrubs and trees, use the shrubs for shelter and to protect their young during rearing seasons, and find warmth from cold winter winds inside the plantings.

Planting a mixture of native, mast-producing shrubs along with evergreen conifers will ensure suitable cover and food for a wide variety of wildlife throughout the year.

Key Considerations

- ▶ Use shrub species native to Iowa or the Midwest.
- ▶ Plant mast-producing species.
- ▶ Plant at least five rows.
- ▶ Allow flowers and grasses to grow between rows and on edges after establishment.
- ▶ Plant a diversity of species.

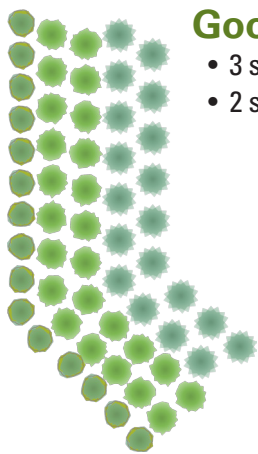


Allowing grasses and forbs (wildflowers) to grow in and around established plantings as shown above provides more food and cover for wildlife than windbreaks that are closely manicured with mowing as shown below.



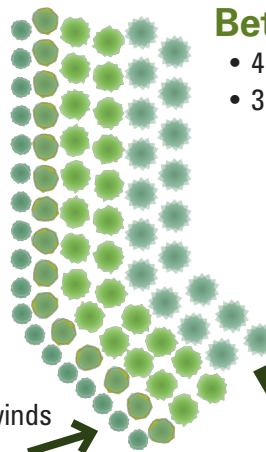
Hard mast like that from American hazel (right) or soft mast like that from grey dogwood (left) provide food for many birds and mammals and is an essential element of windbreak design for wildlife.

Windbreak design for wildlife



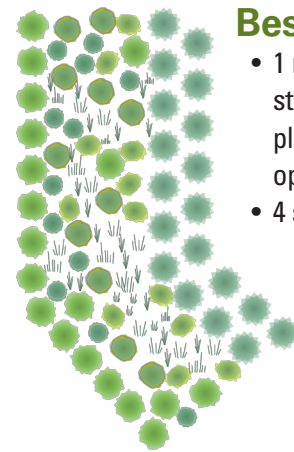
Good

- 3 shrub rows
- 2 shrub species



Better

- 4 shrub rows
- 3 shrub species



Best

- 1 row and staggered plantings with open space
- 4 shrub species

Prevailing winds

2 conifer rows in all designs

The quality of a windbreak for wildlife increases with the diversity of plants, like shrubs, wildflowers, and grasses, and the size of the windbreak. Windbreaks with at least five or more rows provide the best habitat. Breaking up the rigid straight lines in typical plantings can also help protect wildlife from predators that tend to search for prey down linear features. Planting and necessary mowing during

the establishment phase is more challenging in staggered plantings but may be a worthwhile tradeoff if wildlife habitat is a primary goal. Thinning and planting inside established rows of windbreaks is another way to increase diversity while retaining the function of outside rows of the windbreak.

Species selection

Well-designed windbreaks should include at least two rows of conifers and the equivalent width of at least three rows of deciduous trees or native shrubs. Three important considerations for selecting the right species for your windbreak are 1) site suitability, 2) size or growth structure, and 3) wildlife value. Size and growth structure are important considerations for end rows to ensure proper functioning of the windbreak. Refer to Natural Resource

Conservation Service (NRCS) guidelines or the forestry publications cited at the end of this fact sheet for more information on functional considerations in windbreaks. The tables below will aid in selecting a diversity of conifers and native shrubs suitable for your site that provide nesting and winter cover and quality food such as browse, seeds, or mast (fruits and nuts) for wildlife.

Conifers

Species	Site tolerance			Wildlife value			
	Wet	Clayey	Sandy	Browse	Mast/Seeds	Nesting	Winter
Arborvitae (<i>Thuja spp.</i>)		+		++			++
Concolor fir (<i>Abies concolor</i>)		+	+			+	++
Eastern red cedar (<i>Juniperus virginiana</i>)	+	+	+	+	++	+	++
Eastern white pine (<i>Pinus strobus</i>)		+	+	+		+	+
Jack pine (<i>Pinus banksiana</i>)			++			++	+
Norway spruce (<i>Picea abies</i>)		+				+	++
White spruce (<i>Picea glauca</i>)		+			+	+	++

+ indicates compatibility with the quality in the column

++ indicates exceptional compatibility with quality in the column

Browse refers to suitability of twigs for herbivores. Mast/Seeds refer to quality of fruits or seeds for wildlife food. Nesting refers to suitability for shrub-nesting birds. Winter refers to quality of cover during winter for warmth or shelter.

Species	Site tolerance			Wildlife Value			
	Wet	Clayey	Sandy	Browse	Mast/Seeds	Nesting	Winter
American plum (<i>Prunus americana</i>)	+	+	+	+	+	++	++
Arrowwood (<i>Viburnum dentatum</i>)	+	+	+	+	++	+	+
Black chokeberry (<i>Aronia prunifolia</i>)		+		++	+	+	+
Blackhaw (<i>Viburnum prunifolium</i>)		+	+	+	+	+	+
Buttonbush (<i>Cephalanthus occidentalis</i>)	++					+	+
Chokecherry (<i>Prunus virginiana</i>)	+		+	+	++	+	
Crabapple (<i>Malus coronaria</i>)	+	+	+		+	+	
Elderberry (<i>Sambucus</i> spp.)	++	+			++		
Gray Dogwood (<i>Cornus racemosa</i>)	+	+	+	++	++	+	
Hazelnut (<i>Corylus americana</i>)	+	+	+	+	+	++	+
Highbush cranberry (<i>Viburnum trilobum</i>)	+	+			+		
Nannyberry (<i>Viburnum lentago</i>)	+	+			+		+
Ninebark (<i>Physocarpus obulifolius</i>)	+	+	+			++	++
Redosier dogwood (<i>Cornus sericea</i>)	++	+		++	++	++	+
Sandbar willow (<i>Salix interior</i>)	++			+		+	+
Serviceberry (<i>Amelanchier</i> spp.)	+			+	++		
Silky Dogwood (<i>Cornus amomum</i>)	++	+			+	+	

➡ **Never plant exotic invasive shrubs** like autumn olive (*Elaeagnus umbellata*), bush honeysuckle (*Lonicera maackii* or *L. tatarica*), Japanese barberry (*Berberis thunbergii*), or buckthorn (*Rhamnus cathartica*) in windbreaks.

Additional references

► Iowa State University Extension and Outreach - Wildlife Program

<http://www.nrem.iastate.edu/wildlife>

Learn about Iowa wildlife and ways to promote wildlife habitat on your property.

► Iowa State University Extension and Outreach - Forestry Program

<http://www.extension.iastate.edu/forestry>

Learn about forest management, including windbreaks and tree plantings, in Iowa. Download [PM1716 Farmstead Windbreaks: Planning](#) and [PM1717 Farmstead Windbreaks: Establishment, Care, and Maintenance](#). Also find the interactive application for designing functional windbreaks and species selection at <http://web.nrem.iastate.edu/app>.

► Iowa Natural Resources Conservation Service

<http://www.nrcs.usda.gov>

Find resources and information on cost share programs for establishing windbreaks.

► Iowa Department of Natural Resources

<http://www.iowadnr.gov>

Forestry and Wildlife Bureau pages have information about cost-share programs and technical assistance from district foresters or private lands wildlife biologists.

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