

NEBRASKA FOREST SERVICE

Ash Windbreak Renovation: Recommendations Moving Forward



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The emerald ash borer (EAB) was confirmed in Omaha in June of 2016. While EAB is expected to infest ash trees in communities, forests and rural lands throughout the state, the *exact* time frame of the spread is unknown.

EAB only attacks true ash species (*Fraxinus*), so the first step to assessing the impact to your farmstead or windbreak is to determine whether or not the trees are true ash (mountain ash is not a true ash species, so it is not at risk).

Windbreaks, also called shelterbelts, are typically straight-line plantings of trees and shrubs designed to enhance crop production, protect people and livestock, and benefit soil and water conservation. These buffers rely on tree species with large canopies, and ash is a common component.

If these ash trees are killed by EAB, these windbreaks may not serve their primary purpose. To

remain effective, a windbreak cannot have any large gaps. This is even more important in single row windbreaks. Additionally, better functioning windbreaks should not have any large gaps between individual trees.

A windbreak works best if it creates a uniform buffer to the wind. If more than 25% of the windbreak trees are ash, or if it is designed in such a way that dead trees will cause a large gap to form, proactive measures need to be taken to preserve the function of the windbreak.

Consider the ways you can maximize tree health, tree diversity and understory regeneration in windbreaks before removing trees. Focus on retaining healthy seed trees of a variety of non-ash species. If there is little regeneration, especially where there is an abundance of ash, interplanting new trees may be necessary to ensure the windbreak remains functional.

To assist with replanting, the Nebraska Forest Service has compiled a list of recommended species to help preserve your windbreak and the many benefits it provides. Cost-share dollars in Nebraska for windbreak renovation are also available. You can contact either your USDA NRCS county office or your local district forester for more information.

Phone: 402-472-2944

Online: www.nfs.unl.edu/foresters



See reverse side for species list 

Suggested Species to Replace Ash in Windbreaks

LARGE DECIDUOUS TREES (Taller than 40 feet at maturity)

Catalpa, Northern (*Catalpa speciosa*) - Large leaves; white flowers; long seed pods. Susceptible to ash borers. Average height: 25-50 ft.

Cherry, Black (*Prunus serotina*) - Native to eastern Nebraska; prefers moist fertile soils on bottomlands. Valuable timber species. Average height: 35-40 ft.

Coffeetree, Kentucky (*Gymnocladus dioica*) - Nitrogen fixing legume. Prefers moist fertile soils but adapted to a wide range. Drought resistant. Possible toxicity of seeds to humans. Nonaggressive root suckering. Average height: 30-70 ft.

Cottonwood, Eastern (*Populus deltoides*) - Nebraska state tree. Susceptible to Cytospora canker on uplands. Prefers moist soils, especially along rivers and streams. Wildlife use twigs as browse when young and is a good den tree when mature. Average height: 65-100 ft.

Elm, Siberian (*Ulmus pumila*) - Invasive into grasslands and disturbed areas by seedling establishment. Recommended for western Nebraska, not recommended for eastern Nebraska because it can be invasive. Often mistakenly called Chinese elm. Seeds eaten by songbirds. Average height: 26-42 ft.

Hackberry (*Celtis occidentalis*) - Common windbreak species; adapted to wide range of soils. Susceptible to herbicide drift. Nipple gall common on leaves. Songbirds eat seeds. Average height: 45-55 ft.

Linden, American (*Tilia americana*) - Native to eastern NE, along the Niobrara River, and west to Morse Bluff on the Platte. Prefers sun to partial shade, deep, moist fertile soils; pH adaptable. Grows best on well watered, partially shaded sites protected from desiccating winds. Flowers used extensively by bees. Average height: 30-70 ft.

Maple, Silver (*Acer saccharinum*) - Narrow crotch angles may produce multiple stems; susceptible to wind breakage. Nonaggressive root suckering. Fastest growing maple. Common in riparian areas. Average height: 40-50 ft.

Oak, Northern Red (*Quercus rubra*) - Grows on eastern fringes of the Plains. Acorns valuable wildlife food. Produces strong, hard wood used in flooring, furniture, and veneer. Rounded spreading crown. Reddish autumn color. Grows best in sun. Prefers fertile, moist soils, neutral to acidic. Average height: 35-60 ft.

Oak, Bur (*Quercus macrocarpa*) - Drought tolerant. Prefers sunny site; pH and soil adaptable. Tolerates occasional poor drainage and inundation. Round, wide spreading crown. Ranges from south central Canada throughout the Great Plains states. Lacks bright fall color. Drops leaves after first sharp freeze. Average height: 35-45 ft.

Pecan, Northern (*Carya illinoensis*) Use northern seed source or hardy cultivars. Excellent nut species and valuable timber species. Suitable to southeast Nebraska. Average height: 60-80 ft.

Oak, Swamp White (*Quercus alba*) - Desirable windbreak tree because leaves tend to persist throughout winter. Round crown. Durable wine red autumn foliage. Acorns provide wildlife food. Prefers sun, fertile, moist, neutral to acidic soils. Average height: 30-45 ft.

Sycamore, American (*Platanus occidentalis*) - Anthracnose disease is a potential problem. Prefers deep, moist rich soils found in bottomlands. Average height: 40-70 ft.

Walnut, Black (*Juglans nigra*) - Sensitive to broadleaf herbicides. Green husk on nut turning dark brown at maturity. Needs well-drained soils. Most valuable of timber trees. Average height: 40-50 ft.

EVERGREEN TREES (Taller than 40 feet at maturity)

Fir, Concolor (*Abies concolor*) - Delicate. Uses include wildlife habitat - seed source important for songbirds. Average height: 30-50 ft.

Spruce, Black Hills (*Picea glauca densata*) - Small cones. Most tolerant spruce tree for wind, cold, heat, and drought. Average height: 25-45 ft.

Pine, Ponderosa (*Pinus ponderosa*) - Susceptible to tip blight/Zimmerman moth. Use for windbreaks and wildlife habitat. Wild turkey utilize seed source. Prefers acidic soils; tolerates low fertility and drought. Average height: 35-55 ft.

Pine, Eastern White (*Pinus strobus*) - Needs protection from winds; avoid use in outside rows. Fine needles in clusters of five. May show needle damage caused by dry winter winds. Average height: 35-60 ft.

Pine, Southwestern White (*Pinus strobiformis*) - Susceptible to dothistroma needle blight and blister rust. Faster growing than limber pine. Use as windbreak species in southwestern NE only. Average height: 30-55 ft.