



Illinois Extension

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The Thin Green Line: Windbreak Advice

A windbreak protects its homestead from the too prevailing wind. Part forest, part engineering feat, a triple row of evergreens stands at its core. Their failure exposes the buildings to leeward; their health is vital to achieving shelter. It is important to select trees that are well suited to the site, and to maintain the windbreak after it is established.

Windbreaks differ in several critical ways from forests. They are even age stands of trees, planted in single species rows to prevent shading, and to create a tight, uniform shelter. Prudence dictates that each row be comprised of a different species. If a pest or pathogen devastates one type of tree, the survivors will still afford considerable protection. If all goes well, and the trees grow together, they will begin to shade each other out. Trees that can stand an exposed site are intolerant of shade. The lower branches will die, and the windbreak will resemble an old hedge – green perimeter, dead branches inside. The dead wood feeds decay organisms that can decimate trees. Instead of a triple row of trees, there will be, effectively, one wide, thin row. Cutting down every other tree before branches are lost will keep those retained green to the ground – for a time. (Bolin, p 18). The tightly packed, evenly matched trees will lose branches, weaken and decline together; between forty and fifty years is the useful life expectancy of a windbreak.

This list summarizes what we are seeing in the way of reported problems. An issue for all species is herbicide drift. If you are establishing a new windbreak, it should start a minimum of 30 feet from the edge of the nearest farmed field. Farmers may need to use herbicides in their fields; even the most careful applicator can have some drift. Keep your new trees out of harm's way. No tree is perfect in all respects; one or more of these species may offer useful diversity to your landscape.

Abies concolor (White Fir) – Described by Dirr as the “best for the Midwest” (Dirr p. 8), it is heat and cold tolerant, but not well adapted to heavy clay. Not many pest/pathogen problems reported on firs, but they can be stressed by poor sites.

Abies veitchii (veitch fir, Veitch Fir) – These are slightly less heat tolerant than the White Fir.

Juniperus virginiana (Eastern Redcedar) – This is a tough plant. It is susceptible to bagworms, and is an alternate host for cedar –apple/hawthorn/quince rust. If you have susceptible apple or hawthorn trees, this is probably not a good choice.

Picea abies (Norway Spruce) – One of the toughest spruce. It needs full sun and adequate moisture. It is afflicted by spider mites, budworm, and spruce gall adelgid.

Picea glauca (White Spruce) – Very tolerant of less than ideal conditions; it can even endure light shade. It can get spruce bagworm and European pine sawfly.

Picea pungens (Colorado Spruce) – Serious, widespread stress related disease problems; *Cytospora* Canker, *Rhizosphaera* needle cast. Sun and wind tolerant, but requires even moisture – not a feature of our climate in recent years.

Picea omorika (Serbian Spruce) – “Excellent for the Midwest” (Dirr p. 18). Quite heat tolerant (most conifers are native to boreal forests; heat is more difficult for them to endure than cold) – not quite as wind tolerant as White Spruce. It can be infested by aphids, budworm, and borers.

Pinus nigra (Austrian pine) – This species is severely affected by *Diplodia* blight; it is subject to pine wilt disease. Not recommended.

Pinus strobus (Eastern White Pine) – A beautiful tree, but it needs protection from the wind, and is often damaged by ice storms. With maturity, it will lose its lower branches, reducing the amount of screening provided. The species is subject to White Pine decline, a stress related syndrome, if improperly sited. It can also get White Pine Blister rust, White Pine weevil, and Pine needle scale.

Pinus sylvestris (Scotch Pine) – Stands are being devastated by Pine Wilt Disease; it is also subject to *Diplodia* blight. Not recommended.

Pseudotsuga menziesii (Douglasfir) – This species is not particularly drought or wind tolerant. It is an alternate host of the Cooley spruce gall adelgid, so should not be planted next to a Colorado Spruce. Subject to Rhabdocline needle cast.

Thuja occidentalis (Eastern Arborvitae) – This tree needs full sun, and can be damaged by ice, snow, extreme winds, and deer. It can be infested by bagworms. A tough plant when established.

References:

- Bolin, Michael *et al.* *Illinois Windbreak Manual*. Illinois Department of Conservation, Cooperative Extension Service, Soil Conservation Service. http://web.extension.illinois.edu/forestry/iwm_complete.pdf. Web. June 27, 2011.
- Dirr, Michael A., *Manual of Woody Landscape Plants; Their Identification, Ornamental Characteristics, Culture, Propagation and Uses*, Fifth Edition. Stipes Publishing, Champaign, IL. 1998. Print.

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