

1. **Suitability Group** - A windbreak suitability value given to each soil that reflects soil productivity. Explanation of the Conservation Tree and Shrub Suitability Groups can be found in the National Forestry Manual, Section 537.22(1). Identify soil in the planting site to determine suitability group value. A designation of Not Suited (NS) means that the tree/shrub is not suited for that zone.
2. **Average Height 20 Years** - Heights represent expected performance of the individual plant species.
3. **Growth Rate** - Represented by a value relating to plant growth. F=Fast, M=Medium, S=Slow.
4. **Native Species** - N=Native to Kansas, I=Introduced to Kansas
5. **Windbreak Value** - H=High, M=Medium, L=Low. A general rating (H, M, L) of species for windbreaks rated on their ability to provide a useful component in the windbreak. An H rating would indicate that the trees or shrubs are capable of developing a row that is uniform, dense, or tall enough to provide the windbreak component for which it is planned.
6. **Wildlife Value** - A general rating of H, M, or L of a plant's composite of food and cover values for wildlife. Criteria include basal area, season of growth, longevity of fruit, and suitability for nests. Species with an H rating would provide food and cover for many wildlife species.
7. **Lumber Products** - Y=Yes, N=No. A rating of Y indicates that the species may have commercial value as timber.
8. **Fuelwood Product** - A Y rating indicates that the species has fuelwood value.
9. **Drought Tolerance** - The plant's capability to grow in droughty or dry soil conditions. H=Plant can withstand or has physiology to survive droughty periods, M=Some tolerance to drought or dry conditions, L=Little or no tolerance for dry soil conditions.
10. **Soil Texture** - Adaptation to different soil textures. 1=Fine textured soil, 2=Medium textured soil, 3=Coarse texture soils.
11. **Soil Saturation** - The plant's capability to grow in saturated soil conditions. H=Plant can withstand saturated soil conditions, M=Some tolerance to saturated conditions, L=Little tolerance of water-saturated soil, N=No tolerance to water saturation.
12. **Salinity Tolerance** - The plant's ability to tolerate soil salinity. H=Can tolerate high levels of salinity, M=Some tolerance to salinity, L=Little tolerance to salinity, N=No tolerance to salinity.
13. **pH Range** - The range in soil pH values that the plant species can be expected to grow successfully.

Soil Suitability Groups

Suitability Group 1

Description - These are deep, well drained to somewhat poorly, drained soils that receive beneficial moisture from favorable landscape positions, flooding, runoff from adjacent land, or they have a beneficial seasonal high water table during the spring. Soils within this group are generally fine sandy loam to silty clay loam.

Limitations - High pH will have an effect on the selection of species on some soils in this group. Competition from grass and weeds is the principal concern in establishing the managing trees and shrubs. Occasionally, somewhat poorly drained soils may have excessive water for some species.

Suitability Group 2

Description - Soils in this group are deep, poorly drained or very poorly drained, and excessively wet or ponded during the spring or overflow periods. Wetness limits the selection of species suitable for planting on these soils and may reduce the growth rate.

Limitations - Wetness, high pH, and drainage will have an effect on the selection of tree and shrub species for soils in this group. Competition from grass and weeds is the principal concern in establishing and managing trees and shrubs. Spring planting may be delayed because of wet conditions. Soil blowing is a concern on the sandy and organic soils.

Suitability Group 3

Description - Soils in this group are deep, well drained, loamy-textured soils with moderate and moderately slow permeability on uplands.

Limitations - Competition from grass and weeds is the principal concern in establishing and managing trees and shrubs on these soils. Water erosion is a concern on the gently sloping to moderately steep areas.

Suitability Group 4

Description - Soils are moderately deep to very deep and have loamy surface textures with clayey subsoils, have slow or very slow permeability, and occur on uplands.

Limitations - High clay content and water availability have an effect on the selection of tree and shrub species for these soils. Competition from grass and weeds is the principal concern in establishing and managing trees and shrubs. Water erosion is a concern on the gently sloping to moderately steep areas.

Suitability Group 5

Description - Soils in this group are deep with loamy and sandy texture. This group typically includes soils that normally have adequate soil moisture.

Limitations - Competition from grass and weeds and abrasion from soil blowing are the principal concerns in establishing and managing trees and shrubs on these soils.

Suitability Group 6

Description - Soils are well drained, mostly loamy textures, and moderately deep over sand, gravel, bedrock, and other layers that can severely restrict root growth. Soils have low or moderate available water capacity.

Limitations - Droughtiness will have an effect on the selection of tree and shrub species for use on these soils. Competition from grass and weeds is the principal concern in establishing and managing trees and shrubs. Water erosion is a concern on gently sloping to moderately steep areas. Supplemental watering and/or weed fabric barrier may be needed for establishment.

Suitability Group 7

Description - Soils in this group are deep, excessively to moderately well drained, sandy in texture, typically have low or very low available water-holding capacity, and do not normally have adequate moisture.

Limitations - Drought conditions and abrasion from soil blowing are the principal concerns in establishing and managing trees and shrubs on these soils. Specialized site preparation (due to hummocky sand that is subject to blowouts) and specialized planting methods (vegetation between rows is normally left undisturbed) are needed to establish trees and shrubs. Supplemental watering and/or weed fabric barrier may be essential for successful establishment.

Suitability Group 8

Description - Soils are calcareous at or near the surface. They do not receive beneficial moisture from run-in, flooding, or seasonal high water tables.

Limitations - High calcium content and competition from grass and weeds are the principal concerns in establishing the managing trees and shrubs on these soils. Water erosion is a concern on gently sloping to moderately steep areas.

Suitability Group 9

Description - Soils are affected by salinity and/or sodicity.

Limitations - Concentrations of salt and/or restrictive layers will severely affect the establishment, vigor, and growth of trees and shrubs on these soils.

Suitability Group 10

Description - Soils have one or more characteristics such as soil depth, texture, drainage, available water capacity, slope, or salts which severely limit planting, survival, or growth of trees and shrubs.

Limitations - Soils are usually not recommended for farmstead and feedlot windbreaks, field windbreaks, and plantings for recreation and wildlife. However, onsite investigations may reveal that tree and shrub plantings can be made with special treatments (hand-planting, scalp planting, specialized site preparation, drainage, or other specialized treatments). The selection of species must be tailored to the soil conditions existing at each site. **Limiting conditions and the specialized treatments required to overcome these limitations must be documented on the planting plan.**