

CONSERVATION TREE AND SHRUB MANAGEMENT
Stafford County, Kansas

A Conservation Tree/Shrub Suitability Group (CTSG), formerly Windbreak Suitability Group, is a physiographic unit or area having similar climatic and edaphic characteristics that control the selection and height growth of trees and shrubs.

In this table, the Conservation Tree and Shrub Grouping is expressed as a group index number. The group index for Conservation Tree and Shrub groups (CTSG) are a guide for species best suited for different kinds of soil and for prediction height, growth, and effectiveness. The groupings can be used when selection woody plants for windbreaks, wildlife plantings riparian buffers, reforestation, other environmental plantings, recreation, landscaping, wetland restoration or enhancement and critical area plantings. CTSG's are developed to assure satisfactory species selection and adaptation to specific conditions of soil, climate and physiography. CTSG's are a guide for selection species best suited for different kinds of soil and prediction height growth and effectiveness.

All soil series mapped in the state have been placed in 10 groups of similar soil characteristics. Groups 1, 2, 3, 4, 6, and 9 are further divided into subgroups. In addition, all groups provide information by Major Land Resource Areas.

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters a tree or shrub may be well or poorly suited because of soil characteristics. Each tree or shrub also has definable potentials of height growth depending on the factors just mentioned. Accurate definitions of potential heights are necessary for proper windbreak planning and design.

Windbreaks protect livestock, buildings, roads and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low-growing and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Windbreaks are often planted on land that did not grow trees originally. Knowledge of how trees perform on such land can be gained only by observing and recording their performance where trees have been planted and survived. The problem is compounded by the fact that many favorite windbreak species are not indigenous to the areas in which they are planted.

The Kansas Field Office Technical Guide Notice KS-230, Conservation Tree and Shrub Plantings Suitability Groups shows the adapted species listing for each group index number. Showing the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates are based on measurements and observation of established plantings that have been given adequate care. This information should be used to determine the placement of a windbreak, the area protected and the arrangement of species.

A number of attributes are included in the CTSG species tables for each group number found in this section of the Field Office Technical Guide. These attributes were rated subjectively and assigned a relative value to further assist those unfamiliar with individual species characteristics or desirability for the intended use. Definitions and explanations can be found. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery. See part 537 of the National Forestry Manual for additional information.

In the Tree and Shrub Management table interpretive ratings are given for various aspects of forest and conservation tree and shrub management. Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. Well suited indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. Moderately well suited indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable and fair performance can be expected. Some maintenance is needed. Poorly suited indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. Unsited indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

The paragraphs that follow indicate the soil properties considered in rating the soils for forest and conservation tree and shrub management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet. Also, in the Kansas Field Office Technical Guide Notice KS-230, Conservation Tree and Shrub Plantings Suitability Groups.

Ratings in the columns suitability for hand planting and suitability for mechanical planting are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, poorly suited, or unsited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column suitability for mechanical site preparation (surface) are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsited to this management activity. The part of the soil from the surface to a depth of about 1-foot is considered in the ratings.

Ratings in the column suitability for mechanical site preparation (deep) are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column potential for seedling mortality are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality. See the National Forestry Manual, Subpart B for criteria used in rating management concerns. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
009DT: Dillwyn----- Tivoli-----	1 7	Well suited Moderately suited Sandiness	Well suited Moderately suited Slope Sandiness	Well suited Well suited	Well suited Well suited	Low Low
009TV: Tivoli-----	7	Moderately suited Sandiness	Poorly suited Slope Sandiness	Poorly suited Slope	Poorly suited Slope	Low
047CS: Carwile-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High
Drummond-----	9W	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Wetness Moderate Salinity
151KP: Kanza----- Plevna-----	2 2	Well suited Well suited	Well suited Well suited	Well suited Well suited	Well suited Unsuited Wetness	Low High Wetness
159DP: Dillwyn----- Plevna-----	1 2	Well suited Well suited	Well suited Well suited	Well suited Well suited	Well suited Unsuited Wetness	Low High Wetness
159DT: Dillwyn----- Tivoli-----	1 7	Well suited Moderately suited Sandiness	Well suited Moderately suited Slope Sandiness	Well suited Well suited	Well suited Well suited	Low Low
159DU: Drummond-----	9W	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Moderate Salinity
159PE: Plevna-----	2	Well suited	Well suited	Well suited	Unsuited Wetness	High Wetness
990: Abbyville-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water Soil reaction Salinity
991: Abbyville, rarely flooded-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water Soil reaction Salinity High
Kisiwa, occasionally flooded-----	9W	Unsuited Wetness	Poorly suited Wetness	Unsuited Wetness	Unsuited Wetness	Wetness Soil reaction
1005: Albion-----	6G	Well suited	Well suited	Well suited	Well suited	Moderate Available water
1011: Albion-----	6G	Well suited	Well suited	Well suited	Well suited	Moderate Available water
Shellabarger-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water
1324: Carway-----	2	Well suited	Well suited	Well suited	Well suited	High Wetness
Carbika-----	2	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	High Wetness
1359: Clark-----	3	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Ost-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Low
1553: Darlow-----	8	Well suited	Well suited	Well suited	Well suited	Moderate

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		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
Elmer----- 1555: Dillhut-----	8 7	Well suited Moderately suited Sandiness	Well suited Moderately suited Sandiness	Well suited Well suited	Well suited Well suited	Available water Salinity Low High
Plev----- 1556: Dillhut-----	2 7	Moderately suited Sandiness Moderately suited Sandiness	Moderately suited Sandiness Moderately suited Sandiness	Well suited Well suited	Well suited Well suited	Available water High Wetness High
Solvay----- 1725: Farnum----- Funmar----- 1726: Farnum----- Funmar----- 1985: Hayes-----	5 4 3 4 3 5	Well suited Well suited Well suited Well suited Well suited Well suited	Well suited Well suited Well suited Well suited Well suited Well suited	Well suited Well suited Well suited Well suited Well suited Well suited	Well suited Well suited Well suited Well suited Well suited Well suited	Available water Moderate Available water Low Low Low Low Moderate Available water
1986: Hayes----- Solvay-----	5 5	Well suited Well suited	Well suited Well suited	Well suited Well suited	Well suited Well suited	Moderate Available water Moderate Available water
1987: Hayes----- Turon----- 1988: Hayes-----	5 7 5	Well suited Moderately suited Sandiness Well suited	Well suited Moderately suited Sandiness Moderately suited Slope	Well suited Well suited Well suited	Well suited Well suited Well suited	Moderate Available water Low Moderate Available water Low
2381: Kanza----- Ninnescah-----	2 9W	Well suited Well suited	Well suited Well suited	Well suited Well suited	Well suited Well suited	Moderate Available water Low Moderate Wetness Soil reaction
2556: Langdon----- 2958: Ninnescah-----	7 9W	Moderately suited Sandiness Well suited	Moderately suited Sandiness Slope Well suited	Well suited Well suited	Well suited Well suited	Low Moderate Wetness Soil reaction
3053: Ost----- 3180: Pratt----- 3181: Pratt----- Turon-----	8 7 7 7	Well suited Well suited Well suited Moderately suited Slope Well suited Moderately suited Sandiness	Well suited Well suited Moderately suited Slope Well suited Moderately suited Sandiness	Well suited Well suited Well suited Well suited	Well suited Well suited Well suited Well suited	Low Low Low Low Low
3511: Saltcreek----- Naron, sandy substratum-----	5 5	Well suited Well suited	Well suited Well suited	Well suited Well suited	Well suited Well suited	Moderate Available water Low

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		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
3512: Saltcreek-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water
Naron-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water
3520: Saxman-----	1	Well suited	Well suited	Well suited	Well suited	Low
3540: Solvay-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water
3639: Taver-----	3	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Moderate Available water
3640: Tivin-----	7	Moderately suited Sandiness	Moderately suited Slope Sandiness	Poorly suited Slope	Poorly suited Slope	Low
3641: Tivin-----	7	Moderately suited Sandiness	Moderately suited Sandiness Slope	Well suited	Well suited	Low
Dillhut-----	7	Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	High Available water
3644: Turon-----	7	Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	Low
Carway-----	2	Well suited	Well suited	Well suited	Well suited	High Wetness
3926: Water-----		Not rated	Not rated	Not rated	Not rated	Not rated
An: Albion-----	6G	Well suited	Well suited	Well suited	Well suited	Low
At: Attica-----	5	Well suited	Well suited	Well suited	Well suited	Low
Ba: Blanket-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
BIG: Big Salt Marsh-----		Not rated	Not rated	Not rated	Not rated	Not rated
Ca: Carwile-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High Wetness
Cw: Carwile-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High Wetness
Cx: Clark-----	8	Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
Dp: Dillwyn-----	1	Well suited	Well suited	Well suited	Well suited	Low
Plevna-----	2	Well suited	Well suited	Well suited	Unsuited Wetness	High Wetness
Dt: Dillwyn-----	1	Well suited	Well suited	Well suited	Well suited	Low
Tivoli-----	7	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Fa: Farnum-----	3	Well suited	Well suited	Well suited	Well suited	Low
Fr: Farnum-----	3	Well suited	Well suited	Well suited	Well suited	Low
GRP: Gravel Pits-----		Not rated	Not rated	Not rated	Not rated	Not rated

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INT: Aquolls-----		Well suited	Well suited	Well suited	Well suited	High Wetness Soil reaction
Kg: Kingman-----	2	Well suited	Well suited	Well suited	Well suited	High Wetness Soil reaction
M-W: Miscellaneous Water-		Not rated	Not rated	Not rated	Not rated	Not rated
Na: Naron-----	5	Well suited	Well suited	Well suited	Well suited	Low
NAA: Naron-----	5	Well suited	Well suited	Well suited	Well suited	Low
NBB: Naron-----	5	Well suited	Well suited	Well suited	Well suited	Low
Nu: Natrustolls-----	9W	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High Salinity Soil reaction
Pa: Plevna-----	2	Well suited	Well suited	Well suited	Unsuited Wetness	High Wetness
Pc: Plevna-----	2	Well suited	Well suited	Well suited	Unsuited Wetness	High Wetness
Ph: Pratt-----	7	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Po: Pratt-----	7	Well suited	Well suited	Well suited	Well suited	Low
Pr: Pratt-----	7	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Carwile-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High Wetness
Pt: Pratt-----	7	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Tivoli-----	7	Moderately suited Sandiness	Moderately suited Slope Sandiness	Well suited	Well suited	Low
Ta: Tabler-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
TAA: Tabler-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Tv: Tivoli-----	7	Moderately suited Sandiness	Moderately suited Slope Sandiness	Well suited	Well suited	Low
W: Water-----		Not rated	Not rated	Not rated	Not rated	Not rated
Wa: Waldeck-----	1K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Za: Zenda-----	1	Well suited	Well suited	Well suited	Well suited	Low
Natrustolls-----	9W	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High Salinity Soil reaction
ZSS: Drummond-----	9W	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High Salinity Soil reaction
Zenda-----	1	Well suited	Well suited	Well suited	Well suited	Low

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