

CONSERVATION TREE AND SHRUB MANAGEMENT  
Kingman 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. Unsuitable 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 unsuited 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 unsuited 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 unsuited 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
007AE: Albion-----	6G	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Shellabarger-----	5	Well suited	Moderately suited Slope	Well suited	Well suited	Low
007FA: Farnum-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
077KA: Kanza-----	2	Well suited	Well suited	Well suited	Well suited	Low
077KR: Kirkland-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Renfrow-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
077NN: Nashville-----	6D	Well suited	Moderately suited Slope	Well suited	Well suited	Low
077PC: Pond Creek-----	3	Well suited	Well suited	Well suited	Well suited	Low
077RC: Renfrow-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Vernon-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Poorly suited Stickiness	Well suited	Moderate Soil reaction
077SB: Shellabarger-----	5	Well suited	Well suited	Well suited	Well suited	Low
077SE: Shellabarger-----	5	Well suited	Well suited	Well suited	Well suited	Low
077SF: Shellabarger-----	5	Well suited	Moderately suited Slope	Well suited	Well suited	Low
077SG: Shellabarger-----	5	Well suited	Moderately suited Slope	Well suited	Well suited	Low
077SH: Shellabarger-----		Well suited	Well suited	Well suited	Well suited	Low
151AO: Albion-----	6G	Well suited	Moderately suited Slope	Well suited	Well suited	Low
151CN: Clark-----	8	Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
151CO: Clark-----	8	Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
Ost-----	3	Well suited	Well suited	Well suited	Well suited	Low
151KP: Kanza-----	2	Well suited	Well suited	Well suited	Well suited	Low
Plevna-----	2	Well suited	Well suited	Well suited	Unsuited Wetness	High Wetness
151ND: Naron-----	5	Well suited	Well suited	Well suited	Well suited	Low
151NF: Naron-----	5	Well suited	Well suited	Well suited	Well suited	Low
151OC: Ost-----	3	Well suited	Well suited	Well suited	Well suited	Low
151OS: Ost-----	3	Well suited	Well suited	Well suited	Well suited	Low
151PN: Pratt-----	7	Well suited	Moderately suited Slope	Well suited	Well suited	Low
151SE: Shellabarger-----	5	Well suited	Well suited	Well suited	Well suited	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
151ZS: Drummond-----	9W	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High  Salinity Soil reaction Low
Zenda-----	1	Well suited	Well suited	Well suited	Well suited	Low
173MA: Milan-----	3	Well suited	Well suited	Well suited	Well suited	Low
173PB: Plevna-----	2	Well suited	Well suited	Well suited	Unsuited Wetness	High Wetness
173RA: Renfrow-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
173RC: Renfrow-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Wellsford-----		Moderately suited Stickiness	Moderately suited Stickiness	Poorly suited	Well suited	Low
173TA: Tabler-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
191RA: Renfrow-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Grainola-----		Moderately suited Stickiness	Moderately suited Stickiness	Poorly suited	Well suited	Low
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
1004: Albion-----	6G	Well suited	Well suited	Well suited	Well suited	Moderate Available water
1005: Albion-----	6G	Well suited	Well suited	Well suited	Well suited	Moderate Available water
1006: Albion-----	6G	Well suited	Moderately suited Slope	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
1017: Shellabarger, Eroded	5	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate  Available water
Albion-----	6G	Well suited	Moderately 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
1061: Arents, Earthen Dam-		Not rated	Slope Not rated	Not rated	Not rated	Available water Not rated
1359: Clark-----	3	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction Low
Ost-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	
1555: Dillhut-----	7	Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	High Available water High
Plev-----	2	Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	Wetness
1728: Farnum-----	4	Well suited	Well suited	Well suited	Well suited	Low
Funmar-----	3	Well suited	Well suited	Well suited	Well suited	Low
2205: Jamash-----	6	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Piedmont-----	4	Well suited	Well suited	Well suited	Well suited	Low
2381: Kanza-----	2	Well suited	Well suited	Well suited	Well suited	Low
Ninnescah-----	9W	Well suited	Well suited	Well suited	Well suited	Moderate Wetness Soil reaction
2390: Kaskan-----	1	Well suited	Well suited	Well suited	Well suited	Low
2556: Langdon-----	7	Moderately suited Sandiness	Moderately suited Sandiness Slope	Well suited	Well suited	Low
2812: Mahone-----	1	Well suited	Well suited	Well suited	Well suited	Low
2948: Nalim-----	3	Well suited	Well suited	Well suited	Well suited	Low
3051: Ost-----	8	Well suited	Well suited	Well suited	Well suited	Low
3052: Ost-----	8	Well suited	Well suited	Well suited	Well suited	Low
Clark-----	3	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
3170: Penalosa-----	4	Well suited	Well suited	Well suited	Well suited	Low
3171: Penalosa-----	4	Well suited	Well suited	Well suited	Well suited	Low
3180: Pratt-----	7	Well suited	Moderately suited Slope	Well suited	Well suited	Low
3181: Pratt-----	7	Well suited	Well suited	Well suited	Well suited	Low
Turon-----	7	Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	Low
3445: Shellabarger, Moderately Eroded--	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water
3510: Saltcreek-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water Low Low
Funmar-----	3	Well suited	Well suited	Well suited	Well suited	
Farnum-----	4	Well suited	Well suited	Well suited	Well suited	
3530: Shellabarger, Eroded	5	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Available water Moderate
Albion-----	6G	Well suited	Moderately suited	Well suited	Well suited	

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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
3531: Shellabarger, Moderately Eroded--	5	Well suited	Slope Well suited	Well suited	Well suited	Available water Moderate
Nalim-----	3	Well suited	Well suited	Well suited	Well suited	Available water Low
3532: Shellabarger-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water
3533: Shellabarger-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water
3534: Shellabarger-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water
3535: Shellabarger-----	5	Well suited	Well suited	Well suited	Well suited	Moderate Available water Low
Nalim-----	3	Well suited	Well suited	Well suited	Well suited	Low
3926: Water-----		Not rated	Not rated	Not rated	Not rated	Not rated
3966: Willowbrook-----	1	Well suited	Well suited	Well suited	Well suited	Moderate Available water
4005: Yaggy-----	1	Well suited	Well suited	Well suited	Well suited	Moderate Available water Low
Saxman-----	1	Well suited	Well suited	Well suited	Well suited	Low
4110: Zellmont-----	6	Well suited	Well suited	Well suited	Well suited	Low
Poxmash-----	6	Well suited	Well suited	Well suited	Well suited	Low
Aa: Albion-----	6G	Well suited	Well suited	Well suited	Well suited	Low
Ab: Albion-----	6G	Well suited	Well suited	Well suited	Well suited	Low
Ac: Albion-----	6G	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Ad: Albion-----	6G	Well suited	Moderately suited Slope	Well suited	Well suited	Low
AED: Arents, Earthen Dam--		Not rated	Not rated	Not rated	Not rated	Not rated
Ba: Blanket-----	4C	Well suited	Well suited	Well suited	Well suited	Low
Bb: Blanket-----	4C	Well suited	Well suited	Well suited	Well suited	Low
Bc: Blanket-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Ca: Canadian-----	1	Well suited	Well suited	Well suited	Well suited	Low
Cb: Carwile-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High
Cc: Case-----	8	Well suited	Well suited	Well suited	Well suited	Wetness Moderate Soil reaction
Clark-----	8	Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
Cd: Case-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction

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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
Clark-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate  Lime Soil reaction
Ce: Clark-----	8	Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
Cf: Clark-----	8	Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
Da: Dillwyn----- Plevna-----	1 2	Well suited Well suited	Well suited Well suited	Well suited Well suited	Well suited Unsuited Wetness	Low High Wetness
Fa: Farnum-----	3	Well suited	Well suited	Well suited	Well suited	Low
Fb: Farnum-----	3	Well suited	Well suited	Well suited	Well suited	Low
Fc: Farnum-----	3	Well suited	Well suited	Well suited	Well suited	Low
Fd: Farnum-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Fe: Farnum-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Ff: Farnum----- Natrustolls-----	3	Well suited Not rated	Well suited Not rated	Well suited Not rated	Well suited Not rated	Low Not rated
Ka: Kaski-----	1	Well suited	Well suited	Well suited	Well suited	Low
Kb: Kingman-----	2	Well suited	Well suited	Well suited	Well suited	High Wetness Soil reaction
La: Lincoln-----	1K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Ma: McLain-----	1	Well suited	Well suited	Well suited	Well suited	Low
Na: Nashville-----	6D	Well suited	Well suited	Well suited	Well suited	Low
Nb: Nashville-----	6D	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Quinlan-----	10	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate  Soil reaction
Oa: Owens-----		Moderately suited Stickiness	Moderately suited Stickiness	Poorly suited  Stickiness	Well suited	Low
Pa: Pond Creek-----	3	Well suited	Well suited	Well suited	Well suited	Low
Pb: Pratt-----	7	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Pc: Pratt----- Carwile-----	7 1	Well suited Moderately suited Stickiness	Well suited Moderately suited Stickiness	Well suited Well suited	Well suited Well suited	Low High  Wetness
Pd: 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
Qa: Quinlan-----	10	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction

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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
Qb: Quinlan-----	10	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Ra: Renfrow-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Rb: Ruella-----	8	Moderately suited Restrictive layer	Well suited	Well suited	Well suited	Moderate Soil reaction
Rc: Ruella-----	8	Moderately suited Restrictive layer	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
Rock Outcrop-----		Not rated	Not rated	Not rated	Not rated	Not rated
Sa: Shellabarger-----	5	Well suited	Well suited	Well suited	Well suited	Low
Sb: Shellabarger-----	5	Well suited	Well suited	Well suited	Well suited	Low
Sc: Shellabarger-----	5	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Sd: Shellabarger-----	5	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Ta: Tivoli-----	7	Moderately suited Sandiness	Poorly suited Slope Sandiness	Poorly suited Slope	Poorly suited Slope	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

