

## **SECTION II**

### **II - D. SOIL INTERPRETATIONS**

#### **9. Windbreaks**

##### **INTRODUCTION**

Windbreaks can be a very effective tool against wind erosion and damage to crops and farmsteads, as well as an environmentally sound addition to the landscape. Interpretations for establishing and maintaining windbreaks are found here. This information is available through the NRCS Soil Data Mart and NRCS Web Soil Survey. The National Soil Information System (NASIS) is the repository for this data set.

##### **WINDBREAK SUITABILITY GROUPS**

Windbreak Suitability Group system is a system of standardized classification developed by the NRCS for correlating tree and shrub species adaptation, establishment, and height growth to specific edaphic and climatic parameters. Where specific windbreak suitability groups are not available, Conservation Tree/Shrub Suitability Groups (CTSG) is used. CTSGs are a guide for selecting species best suited for different kinds of soil and for predicting height growth and effectiveness.

For both systems, each classification unit is defined by a climatic area and a range of soil characteristics. They are normally applied to non-forested agricultural 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 based on soil type and climate. The interpretation for a soil map unit normally consists of a list of adapted tree and shrub species, their estimated 20-year heights, and other plant attributes that might be needed either regionally or locally in order to be effective windbreaks.

The system is designed to be a flexible system that could be utilized to develop plant materials and establish specifications for wind erosion control and crop protection plantings, living snow fences, wildlife plantings, noise barriers, energy conservation plantings, and protection for farmsteads and feedlots. Additionally, the 20-year heights of the adapted trees and shrubs provide an indication of long term performance.

The system consists of two parts. The first part is based on the combination of individual and partial Major Land Resource Areas. These are geographic areas characterized by particular soil patterns, climate, water resources, land uses, etc. Each grouping represents a single plant hardiness zone for tree and shrub species. The second portion subdivides the soil series and/or phase used in California soil groupings. Each group has a common name such as loamy, clayey,

droughty, etc. and denotes certain soil properties and characteristics that significantly limit species selection or effect the expected height growth.

## **WINDBREAK SOIL SURVEY INFORMATION**

Within the Soil Data Mart, information on Conservation Tree/Shrub Suitability Groups is available for California soil survey areas by selecting the “Selected Soil Interpretations” report and selecting the “FOR – Conservation Tree/Shrub Groups” interpretation from the choice list.

Within the Web Soil Survey information on Conservation Tree/Shrub Suitability Group is available for California soil survey areas under the “Soil Reports” tab, under the section “AOI Inventory”, under the section “Selected Soil Interpretations”.

Conservation Tree/Shrub Suitability Groups (CTSG) are described and their criteria defined in the USDA-NRCS National Forestry Manual under Section 537, Part 537.4, and Exhibit 537-15 “Conservation Tree/Shrub Group (CTSG) Criteria”.

## **NRCS VegSpec Web-based Tool**

The selection of adapted plant species and predicted height growth relative to specific soil types has been automated with the development of the USDA-NRCS VegSpec software program. This web-based tool can be used to select appropriate tree and shrub species for windbreaks and shelterbelts and incorporates many of the concepts used to develop CTSGs.

VegSpec is a Web-based decision support system that assists land managers in revegetation planning and design. VegSpec uses soil, plant, and climate data to select plant species that are (1) adapted to a specific site, (2) suitable for the selected practice (treatment), and (3) appropriate for the purposes and sub-purposes for which the planting is intended. The website for the VegSpec program is <http://vegspec.sc.egov.usda.gov/vegSpec/index.jsp>.

## **WIND ERODIBILITY GROUPS/WIND ERODIBILITY INDEX**

Soil surveys also contain information about the susceptibility of various soils to wind erosion. The Wind Erodibility Group (WEG) is defined as a grouping of soils that have similar properties affecting the resistance to soil blowing in cultivated areas. The groups indicate the susceptibility to blowing. The Wind Erodibility Index (I) is used in the Wind Erosion Equation (WEQ) and is assigned using Wind Erodibility Groups. Soil properties that are most important in determining Wind Erodibility Groups are: 1) Surface Soil Texture; 2) Organic Matter Content; 3) Calcium Carbonate Reaction; 4) Coarse Fragment Content; and 5) Aggregate Stability. See Section 618.72 of the USDA-NRCS Soil Survey Handbook for definitions and criteria.

Within the Soil Data Mart, Wind Erodibility Groups and Wind Erodibility Indexes are available for California soils by selecting the “Physical Soil Properties Report”. Within the Web Soil Survey, maps and tables of Wind Erodibility Groups and Wind Erodibility Indexes are available for California soil survey areas under the “Soil Properties and Qualities” tab, under the section “Soil Erosion Factors”.

<u>WEG</u>	<u>Wind Erodibility Index (I) (tons/ac/yr)</u>
1	310 (very fine sands) 250 (fine sands) 220 (fine sands) 180 (medium sands) 160 (coarse sands)
2	134
3	86
4	86
4L	86
5	56
6	48
7	38
8	0