Plant Salt Tolerance List for the San Francisco Bay Area Landscapes

by Nelda Matheny, L.R. Costello, Carol Randisi and Ryan Gilpin. 2021.

This List is a companion to Irrigating San Francisco Bay Area Landscapes with Recycled Water (Guide), available electronically through the WateReuse California website https://watereuse.org/sections/watereuse-california/.

To use the spreadsheet, download it and then search and sort the list as needed.

The *Plant Salt Tolerance List for the San Francisco Bay Area Landscapes* contains over 500 species of trees, shrubs, vines, perennials, and grasses. The list includes ratings for salt tolerance, water use, plant type, and whether the plant is native to California and/or invasive. The ratings are approximations; plant response will vary depending on specific site and microclimate variables. Refer to the *Guide* , page 32 for instruction on how to use this *List* to develop a plant palette that is appropriate to the irrigation water quality and the landscape soil conditions.

Considerable variation in ratings among published plant lists is common because of differences in climate, soil conditions, salt type, whether ratings were based on soil or water salinity, length of the study, and other variables. These variables were considered when assigning a salt tolerance rating for San Francisco Bay Area landscapes.

Following are the components of the *Plant Salt Tolerance List* :

Scientific name

The current scientific (botanical) name is listed according to standard nomenclature. Where the nomenclature has changed, the previous name is listed and the reader directed to the current name.

Common name

The common name in general use. Many plants have more than one common name.

Salt tolerance

Rating is based on soil salinity range in which species is expected to maintain acceptable appearance and health in most Bay Area landscapes.

Salt tolerance rating	Soil salinity (EC_e, dS/m)

WUCOLS

The Water Use Classification of Landscape Species (ucanr.edu/sites/WUCOLS/) rating is the approximate amount of irrigation water needed by the species to maintain good appearance and health, expressed as a percentage of reference evapotranspiration (ETo).

WUCOLS rating	% of ETo
Very low	<10%

Plant type

The general form or use in the landscape. Categories include tree, shrub, groundcover, vine, fern, grass, grass-like, perennial and succulent.

Native/Invasive

Species native to California are identified. Cultivars of native species were included as well. The primary reference was Calscape (California Native Plant Society, calscape.org)

Invasive plants are identified based on classification by the California Invasive Plant Council (cal-ipc.org).

How the salt tolerance list was developed

The salt tolerance ratings were based on exhaustive literature searches over many years. The ratings were from quantitative data from scientific research when available, but more often the references reported personal and anecdotal experience. Many sources did not describe how their ratings were established, if or how salinity was assessed, the conditions under which the plants were grown, and/or the criteria for rating sensitivity (e.g. growth rate, appearance, degree of injury symptoms, etc.). In some cases, it was not clear if the ratings were based on soil salinity, irrigation water salinity, wind-born salt spray, or road salt applications. We did our best to interpret the ratings and apply them to Bay Area landscapes.

An important consideration for research-based ratings is how the experiments were conducted and for how long. In our experience, experimental results from small plants grown in containers in a soilless media for a few months may not be consistent with what we observe in a mature landscape with fine-textured mineral soil. Experimental results that categorize salt tolerance by degree of growth reduction may not apply to landscapes where the primary concerns are appearance and health, not growth rate.

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The authors are interested in learning of users' experience with salt tolerance ratings and plant performance. Please send comments to Nelda Matheny, Nelda@HortScience.com.