

Evaluation of Salt Tolerance of Bedding Plants

Dr. Genhua Niu and Dr. Youping Sun, Texas A&M AgriLife Research & Extension Center at El Paso

Supported by: Texas AgriLife Research, Rio Grande Basin Initiative, USDA-NIFA

BACKGROUND

Bedding plants are extensively used in landscapes throughout the country. However, their use in the Southwest U.S. is relatively limited due to the adverse climate conditions. Bedding plant production is the fastest-growing segment in the horticulture industry in the United States. New cultivars are being developed and released each year. Our recent research has revealed that some cultivars are more stress tolerant than others. Responses of various bedding plant species and cultivars to environmental stresses (salt, drought, and heat) are important for consumers and growers. This information is also important for breeders to develop cultivars for improved landscape performance.

OBJECTIVES

- Evaluate salt tolerance of bedding plants which are also potentially heat and drought tolerant for the Southwest U.S. region.
- Understand salt tolerance mechanisms of selected bedding plants in order to aid breeding and biotechnology programs.

RESULTS AND BENEFITS

- Large variations were observed in salt tolerance among tested bedding plants.
- A number of salt tolerant bedding plants can be irrigated with lower quality water at moderate salinity (electrical conductivity of 3 to 5 dS/m or total dissolved solid at 2,000 to 3,000 ppm) without any visual damage, although plants may become smaller and more compact as salinity of irrigation water increased. Examples are *Angelonia angustifolia* 'Serena' series (angelonia), *Plumbago auriculata* (blue plumbago), *Catharanthus roseus* (vinca), *Helenium amarum* 'Dakota Gold' (helenium), *Gomphrena globosa* (gomphrena), and a number of *Petunia × hybrida* (petunia) cultivars.
- Ornamental pepper 'Calico', 'Black Pearl', and 'NuMex' series (Cinco de Mayo, Centennial, Easter, April Fool's day, Halloween, Twilight, St. Patrick's Day, and Valentine) are moderately tolerant to salt. Relatively less tolerant cultivars are 'NuMex Memorial Day' and 'NuMex Christmas'.
- Salt sensitive bedding plants examples are *Zinnia marylandica* Zahara Series (zinnia) and *Z. maritima* 'Solcito' but they are very drought and heat tolerant.

