

# “Anticipated and Unanticipated Impacts of Global Climate Change on Our Texas Gardens”

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by

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“You’ve got to know when to hold ‘em  
Know when to fold ‘em  
Know when to walk away  
And know when to run...”

From “The Gambler” by Kenny Rogers

Dr. Mike Arnold used this old Kenny Rogers song to illustrate how gardeners are naturally optimistic risktakers who bet on having just the right amounts of sun and rain. But the gamble is getting riskier with the increasing heat and drought that we can expect due to global climate change. Dr. Arnold used charts and figures to illustrate how the weather in the lower 48 states is becoming mostly warmer and drier. The southwestern U.S. will be greatly affected by these changes in the future. How will they affect our plants and what can be done to mitigate the effects of some of the extreme weather conditions?

One reason for the increasing heat is greater urbanization, resulting in “heat islands,” giving us more 90+ degree days. Once the temperature reaches 90 degrees, plants become stressed because photosynthesis is less efficient. Insect predation gets worse because the insects’ metabolism increases, so that they need to consume more. Fewer winter chilling hours may harm crops such as fruits and wine grapes that depend on them.

Then how to explain the extremely cold and snowy Texas winter of 2021? That happened because the greatest warming has occurred in the arctic. The weakened polar vortex weakens the jet stream which, in turn, allows dips of arctic air into the mid-latitudes, including Texas. Even though the overall trend is toward hotter and drier, we will still experience cold and wet weather extremes from time to time.

How can gardeners and landscapers cope with the worst effects of climate change? Here are some of the recommendations:

- Embrace diversity in landscape plants, which helps ensure that at least some plants will survive regardless of the extremes that nature may inflict during any single growing season.
- Pay attention to plant selection. Choose plants with the appropriate tolerance to heat, cold, drought, flooding, pests, and diseases in your area. Plant more native plants, but especially those with a local provenance, meaning plants grown from seeds or tissue from parent plants living in climatic conditions like yours, especially when it comes to trees and shrubs. “Provenance” is not the same thing as the seed source. Instead, it refers to where the plant’s original genetic material came from. For example, if you were going to plant a live oak tree, it would be better to choose a live oak descended from parent trees in Bexar County or the Hill Country rather than the Gulf Coast. Another example of using plant selection: Dr. Arnold points out that although Mexican Fan Palms (*Washingtonia robusta*) are cheaper and faster-growing than California Fan Palms (*Washingtonia filifera*), the California Fan Palms survived the past winter in greater numbers, and so might be a better choice for this area.
- Use mulch in the garden on a regular basis. In the summer, it preserves soil moisture, but in the winter, it mimics the effect of snow. Snow cover was the reason that many local subtropical and annual plants survived the past winter.
- Incorporate low impact development (LID) features in landscapes, such as rain gardens, bioswales and rainwater retention that will help limit flooding and water pollution.
- Accept the dynamic nature of gardens. Even the most famous gardens have changed over the years as plants grow larger, become overgrown, die, or are replaced as people’s use and appreciation of the gardens evolve.

Submitted by Anne Moss, June 2021.