



## Growing Edible Arizona Forests, An Illustrated Guide

Excerpt from *leafnetworkaz.org*

### Edible Tree Guide

#### LEARN Values, Benefits and Characteristics

- Climate Change

### Potential Impacts of Climate Change on tree characteristics

Rain, temperature and other weather factors are being affected by shifts occurring in the climate. Tree characteristics and needs could change over time due to climate shifts. A discussion of potential climate changes, impacts, and strategies to adapt to these impacts, is provided at **Edible Trees and Climate, A Focus on Arizona**. This document is available at *leafnetworkaz.org* at **LEARN – Climate Change**. Scientists cannot predict exactly how climate will change, but the changes listed below could occur in Arizona and the Southwest, affecting where edible trees should be planted and their water needs.

### POTENTIAL CLIMATE CHANGES IN ARIZONA AND SOUTHWEST

#### Heat and drought changes

Higher average temperatures and increased droughts may affect the region and could result in hotter drought periods and more wildfire due to heat and drought.

#### Precipitation changes

Decreases in precipitation of 5% to 10% could occur compared to values in earlier times, especially in April, May and June—months that are already very dry. There is a possibility of more extreme variability in rainfall, with longer periods with no rainfall and more extreme rainfall events when rain does occur. There could be more rain than snow compared to past ratios, but with thicker and deeper snowfalls when it is cold.

#### Evaporation changes

Evaporation rates may be higher, resulting in more water lost from soils, possible decreases in runoff to rivers and less recharge of groundwater.

#### Water demand changes

Outdoor water demand might increase due to heat, drought and less rain. Competition for graywater between individuals and municipal systems might increase, along with competition for stormwater flows.



Higher temperatures and lower rainfall could stress trees, such as this high water use pecan.

#### Water supply changes

Reduced surface water supplies flowing in the Colorado River could mean lower flows in the CAP (Central Arizona Project canal) and reduced allocations to CAP water users. Rationing of municipal water supplies may be needed. Groundwater recharge might decrease resulting in higher groundwater pumping costs from deeper water levels. More rapid melting of mountain snowpack and shorter snowmelt period in the spring could mean less runoff to landscapes and surface waters.

#### Wind changes

Higher winds during intense storms could break tree limbs, uproot trees and stir up more dust storms.

#### Additional effects on edible trees

Trees may experience more stress due to lower rainfall and higher temperatures and due to urban heat island effects in dense urban areas. Chill hours might decrease but there may not be fewer freezing nights or less frost risk. The geographic range of insects that attack fruit trees might expand. Utility water supplies could be reduced due to more competition and less availability for trees. Higher levels of the greenhouse gas CO<sub>2</sub> could potentially provide more “plant food” that could benefit trees.