



Linking Edible Arizona Forests

Growing Edible Arizona Forests, An Illustrated Guide

Excerpt from *leafnetworkaz.org*

Edible Tree Guide

CHOOSE Planting Site and Design

- Develop Your Tree Planting Design

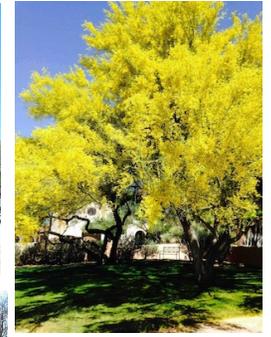
Develop Your Tree Planting Design

Develop a clear plan for your edible tree planting site. Take into account site-specific conditions and microclimates including sun and shade, strong winds, cold air drainage, wildfire potential, wildlife and other factors. Choose trees that grow well in your general area and in the microclimates at your site. Given your site microclimates and available water resources, following *Site Design Principles* can help you choose and place trees to create a more self-sustaining, productive edible tree site. As always, know where all above ground and underground utility lines are before you plan, dig or plant, and **do not plant over buried utility lines or under overhead utility lines.**

Example tree planting designs are shown below for a Mid-Elevation Desert site and for a High-Plateau/ Mountain site. These illustrate the use of the Site Design Principles, water resource strategies and selection of trees for different areas of Arizona.

SITE DESIGN PRINCIPLES

- 1. Place site elements so they assist each other.** Site elements include trees, pathways, tanks, buildings, and many other living and structural components of the site, including people. A tree placed next to a building can shade and be shaded by the building while water from the roof helps support the tree.
- 2. Select and design each site element to perform multiple functions.** Pick trees that provide food, add nitrogen to the soil and add beauty to the site. Use tanks to trellis climbing plants.
- 3. Make sure each critical need is supported by multiple site elements.** It is critical to provide water to trees, so make sure you have multiple long-term water sources, especially under drought conditions. Tree pollination is also critical, so select and space trees appropriately to provide the type of pollination needed to produce.
- 4. Place site elements according to their need for attention.** Place trees that need more attention in locations where people will notice and tend them such as next to the front door or driveway. Provide pathways to all trees.
- 5. Recycle materials and energy on site.** Take cuttings off trees and root them in pots to grow new trees for free. Compost tree trimmings and use them for mulch.
- 6. Use and accelerate natural plant succession to increase site productivity.** Plant edible understory plants at the same time you plant edible trees so they grow together into a diverse, productive food system. Consider selecting multiple trees and varieties that extend the ripening seasons for fruits, nuts, pods and seeds.



MID-ELEVATION DESERT DESIGN EXAMPLE

- On-site water resources are used throughout the site as shown as leafnetworkkz.org **CHOOSE – Water Resources Strategy**. Passive water harvesting basins are placed around the site based on existing areas of water flow and pooling. Trees within basins are placed on slightly raised mounds to keep trunks above standing water. All basins are mulched.
- Hardy native mesquite, ironwood and palo verde trees are planted west and north of the house to shade intense summer afternoon sun and buffer strong westerly winds.
- Quince is planted east of mesquite in the backyard to get chill hours and protection from winds.
- Mesquite in the front yard shades more heat-sensitive pomegranate in summer. Pomegranate requires some chill hours so could be put in the backyard for more chill.
- Cold-sensitive orange tree is planted east of the house, warmed by morning sun and heat radiating off nearby wall in winter. Orange tree southeast of the house is warmed by winter sun all day. (Since oranges are generally self-pollinating, could replace one orange tree with another self-pollinating citrus tree.)
- Apple tree needing chill hours is planted on north side of the house to receive deep shade in winter. Washing machine graywater goes to apple tree in summer and to orange trees in winter when apple tree is dormant.
- Rainwater tank harvests water from north half of roof. Tank buffers hot and cold air temperatures, benefitting the nearby orange tree. Hose delivers water by gravity flow to the apple tree and orange trees, diluting graywater. South-side roof downspout flows to nearby basin and overflows to a series of basins on west side of house.
- AC condensate water is delivered by pipe or hose to adjacent orange trees and nearby apple tree.
- Native edible understory including wolfberry, chiltepin, and desert hackberry are planted under native trees to increase diversity, productivity and wildlife habitat.
- Potable water can be delivered by hose to any tree needing additional water.

TREE PLANTING LIST FOR MID ELEVATION DESERT SITE

Edible Tree	Water needs	Chill needs (hours)	Canopy Diameter (feet)	Tree Height (feet)
Apple	medium	100-1500	15-20	15-30
Ironwood	low	none	15-25	15-45
Mesquite	low	none	30	30
Orange	high	none	20	20-30
Palo verde	low	none	25-30	20-30
Pomegranate	medium	50-300	10	15
Quince	medium	100-500	25	15-30



APPLE



IRONWOOD



MESQUITE



ORANGE



PALO VERDE



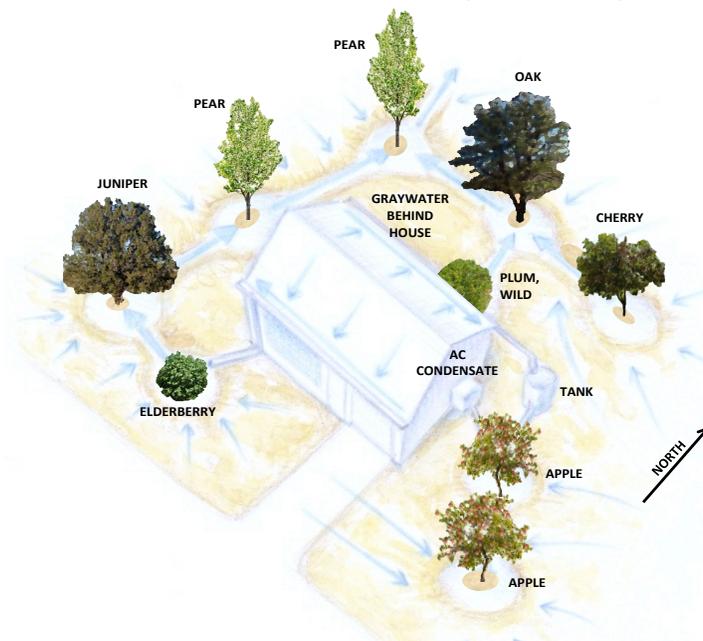
POMEGRANATE



QUINCE

HIGH-PLATEAU/MOUNTAIN AREA DESIGN EXAMPLE

- On-site water resources are used throughout the site as shown as *leafnetworkaz.org* **CHOOSE – Water Resources Strategy**. Passive water harvesting basins are placed around the site based on existing areas of water flow and pooling. Trees within basins are placed on slightly raised mounds to keep trunks above standing water. All basins are mulched.
- Two apple trees are planted east and southeast of the house to pollinate one another, and to be the first trees to be warmed by the sun in the colder climate.
- Just north of the house is a hardy wild bush plum that can withstand colder temperatures and will receive supplemental water from the graywater outlet.
- A rainwater tank harvests water from the north half of roof. The tank buffers hot and cold air temperatures, benefitting the nearby apple tree. Hose delivers water by gravity flow to the apple trees and the wild plum tree, diluting graywater.
- The south-side roof downspout flows to the nearby basin and overflows to a series of basins on west side of house.
- A short elderberry which drops its leaves in winter is planted south of the house to receive roof runoff and provide fruit without blocking winter sun needed to warm the inside of the house.
- A hardy juniper is planted west of the elderberry where the evergreen juniper provides shade to the elderberry in summer and wind protection year-round.
- A native oak is planted north of the house with a cherry tree planted to the east where it is shaded in summer and protected from strong westerly winds.
- Two late blooming pear trees are planted west and northwest of the house to pollinate one another. They produce in high winter chill hours and are not as fire prone as juniper and oak, which are placed farther away from the house.
- Potable water can be delivered by hose to any tree needing additional water.



TREE PLANTING LIST FOR HIGH PLATEAU ELEVATION AREA SITE

Edible Tree	Water needs	Chill needs (hours)	Canopy Diameter (feet)	Tree Height (feet)
Apple	medium	100-1500	15-20	15-30
Cherry	medium	400-1400	20-30	30+
Elderberry	medium	unknown	10	10-30
Juniper	low	unknown	20-40	<50
Oak	medium	unknown	40+	60+
Pear	medium	200-1500	15-25	30-60
Plum, wild	medium	150-1500	10-20	10-20



APPLE



CHERRY



ELDERBERRY



JUNIPER



OAK



PEAR



PLUM, WILD