"Why is my plant dying?" is a variation of many of the questions answered by local Master Gardeners. A leading cause of these plant losses began long ago at the point of an inappropriate plant selection.

The choices you make selecting major landscape plants will determine whether your garden will be easy to maintain, or will take a lot of effort or money for upkeep.

So how does a property owner choose suitable plants? Commonsense plant selection is the process of matching plant species to site conditions. Conditions include available growing space; local environment such as sunlight, climate, and soils; and the availability and cost of water.

Available Growing Space:

The start to your easy maintenance landscape, is to realize how much growing space is, or more likely is not, available. For each plant, restrictions in height and width, and available root space all need to be considered. Woody plants – trees, shrubs, and vines – can share spaces with each other, and with perennial or annual flowers and grasses.

The most common mistake we see is a plant that quickly outgrows its available space. The property owner drastically prunes branches that rub against the house, or grows into power lines or over driveways. The plant reacts by quick re-growth to replace what it lost by the pruning. The homeowner
again drastically prunes. This re-growth and aggressive pruning weakens the plant. In addition, each pruning cut becomes an open invitation to insect and disease pests.

The first step is to decide how much growing space is available above and below ground. You can then determine plants which will grow to fit into that space when mature. Height restrictions can include utility lines and drops, building roof overhangs, patio roofs, and taller plants. Width restrictions include walls, pathways, sidewalks, driveways, and other plants.

Roots of healthy mature trees and shrubs can extend 1.5 to 4 times the width of the plant canopy. For example the roots of a 30 foot diameter mature Afghan Pine *Pinus eldarica* tree can spread from 45 to 120 feet in area. That's expecting a lot for the space in a 20 foot front setback!

Underground space should only include soil or mulched areas. Space under an asphalt surface generally is too hot for proper root growth. Cement areas limit the amount of oxygen in the soil, so are limited as a healthy space for root growth. Patio or pathway spaces covered with light colored loose brick or paving squares on a permeable base are acceptable for root space.

Width restrictions remind us that shrubs and trees should never be planted closer to a wall than one-half its mature diameter. For example, if you want to plant an Arizona Rosewood *Vauquelina californica*, which has a mature canopy diameter of 10 feet, you'll need to plant it 5 feet or more from any vertical wall.

**Sunlight and Climate:**

Plant lists show whether a plant needs full sun, partial sun, or full shade. Ideal lists also show a low winter temperature or USDA winter hardiness zones or the Sunset western climate zones. Some plant lists will also show water needs. Woody landscape plants must be well-adapted to our mid- and high-desert summer temperatures, and low freezing winter temperatures. Each of our yards also has microclimates depending on exposure and elevation changes and proximity to buildings and walls. North and east exposures are generally cooler than south and west exposures.
Soils:

Most trees and large shrubs need a soil depth of 18-24 inches. Learning what soils you have helps to make those plant choices. Desert soils are alkaline and have little, if any, organic material. Many areas around Kingman have poor soils, or a caliche or under laying rocks. In Golden Valley, you may find sandy soils, or clay layers. If you are lucky to have undisturbed desert soil, native plants are ideal choices, without additives.

Soils in recent construction areas may be compacted by equipment, and the top soils stripped or moved to another location. Compacted soil can limit water penetration, and air exchange, which in turn inhibits healthy root growth.

Your soil may determine your plant choices. Some plants require well drained soils, and will not thrive when roots sit in wet or damp soil for a week or two. Other native plants that grow along washes use every drop of water they can get.

While sandy soil is well drained and well aerated, it will need more frequent irrigation. On the other hand, clay soils do not drain well, are poorly aerated, and are easily compacted, but require less frequent irrigation. Either type of soil can be amended with some compost or other organic materials, and heavy compacted soils should be loosened. You will want to encourage roots to grow outward from the trunk, so adding amendments and loosening the soil during subsequent years in a gradually increasing radius will support roots to spread.

To help with drainage, use a post hole digger to drill through a caliche layer. A good amendment to add as you loosen and dig into our alkaline soils is soil sulphur.

Water:

Thanks in part to the growth in the major cities in the Phoenix and Las Vegas areas, xeriscape and low-water use plants are becoming more and more available for use in our desert yards.

To remain attractive, native and low-water use plants still require supplemental irrigation beyond rainfall. They will grow to maturity faster, and once full grown will require larger amounts of water than
when first planted. If you have a very limited water supply, keep this in mind, and limit the numbers of large mature plants you will have, or choose smaller maturing trees.

The growth of trees and shrubs necessitates the addition of irrigation emitters to encourage roots to spread outward and then to provide sufficient water for the larger area of plant branches and leaves. If a root system is not developed, a tree can blow over in strong winds.

The grouping of plants together can simplify irrigation and create beneficial humidity zones. Plants grouped together should have similar water needs. Plant water loving plants together, and plant low water use plants together to make irrigation easier. The basic desert theme is to plant higher water use plants closer to your home or outdoor living space, and the lower water groupings further away, blending toward native desert space.

Mulching, whether organic with plant materials, or inorganic with gravel mulch, helps to save water by creating a barrier between the soil and the dry desert air. Most native plants prefer inorganic mulches similar to their native desert habitat.

Under no circumstance should you use a solid plastic barrier beneath any mulch. It inhibits rain water penetration, and does not allow needed oxygen to get into the earth. Most weeds roots will not grow through a six-inch layer of mulch. Plastic also encourages roach populations to breed in the dark moist area just under the plastic. If you feel you must use a barrier, porous landscape cloth is a much better choice.

Resources:

There is a new resource for choosing low water use landscape plants for your Kingman, Golden Valley, or Dolan Springs gardens. A second one is available for the river city areas of Bullhead City and Lake Havasu City. The University of Arizona, Mohave County Cooperative Extension office now has available booklets, in pdf form on the internet, and hard copies at their office at 101 E. Beale Street, Kingman. [http://cals.arizona.edu/mohave/water/landscapingkingmangoldenvalleydolan.pdf](http://cals.arizona.edu/mohave/water/landscapingkingmangoldenvalleydolan.pdf) and [http://cals.arizona.edu/mohave/water/landscapebullheadcitylakehavasu.pdf](http://cals.arizona.edu/mohave/water/landscapebullheadcitylakehavasu.pdf)
Other resources are the website plant database of Mountain States Wholesale Nursery, at www.mswn.com, and the Sunset Western Garden Book.

If you are interested in PONDS, Kingman Area Master Gardeners will be holding a “GARDEN POND” workshop on Saturday, May 31, 2008 at 9:00 to 11:00 AM in Kingman. For more information telephone the University of Arizona Mohave County Cooperative Extension at 928-753-3788 or visit at 101 E. Beale Street, Suite A, Kingman.

CONTACT: VICKI COOMBS
ADMINISTRATIVE ASST
THE UNIVERSITY OF ARIZONA
MOHAVE COUNTY
COORDINATING EXTENSION
101 E BEALE ST STE A
KINGMAN AZ 86401-5808
928 753-3788/928 753-1665 (FAX)
mohavece@cals.arizona.edu