



Las Campanas Water Cooperative

SANTA FE, NEW MEXICO

Introduction: Low Water Use Plants for Las Campanas

Tracy Neal, 2023

This is a list of plants that can be expected to grow acceptably under low to moderate water use conditions in the Las Campanas area, given proper siting and care. A list like this is very difficult to create in the current situation; it is impossible to accurately predict how the climate will change here in the coming decades and exactly how this will affect the plants we use in our gardens. Most people who study the issue expect temperatures to increase during both the growing season and in the winter, as we have seen most years this century. Though late frosts in April still seem likely, first frosts in the fall seem to come more often now in mid-to-late October or early November, thereby extending the growing season. The effect of warmer temperatures and a longer growing season is to create a greater need for water over a longer time. Plants that may have gotten by with very little irrigation when the climate was cooler and wetter and the season was shorter may need more frequent irrigation and substantially more water overall in order to stay healthy.

Predictions for precipitation patterns vary widely, though drier winters and smaller snowpacks are a common expectation, which will create more stress on plants coming out of dormancy and facing hot dry weather in May and June. Precipitation during the growing season may be more likely to come as infrequent downpours between long dry spells. Using techniques to maximize the beneficial effects of natural precipitation and supplement it in all feasible ways will be important. Working with the land to direct and hold water, collecting and storing rainfall in cisterns and irrigating with it later, and exploring the use of alternative sources (grey water, effluent, etc) will all be important for keeping our landscapes healthy.

This list is not intended to be used to limit plant selection, but to serve as a guide for those who want to know more about reasonable choices for this area. Some trees that fit the criteria of low water use (notably *Fraxinus* species <Ash> and *Robinia* species <Flowering Locust>) have been omitted due to the expectation that pest pressures will make their use and survival questionable. Trees classified as "invasive/noxious weeds", which include Russian olive, Siberian elm, tamarisk, and tree of heaven, are also omitted. For those who wish to experiment with plants not listed here, I urge you to find out all that you can about the plants' expected hardiness, cultural requirements (especially heat and drought tolerance), and potential problems. The plants are listed in columns by type, botanical name, common name, water needs, cautions, and comments. When the terms "cultivars", "selections" and "forms" are used,

it indicates that there is more than one variety of that plant sold. All of these plants can be used in the private areas behind courtyard walls and in the Transition Zone close to the house (see "Las Campanas Natural Area and Transition Zone Definitions" document). Plants with "NA" in the comments section can also be used in the Natural Area beyond the Transition Zone.

Abbreviations used for the type of plant listed are as follows: dt and ds indicate "deciduous trees" and "deciduous shrubs", respectively; et and es stand for "evergreen trees" and "evergreen shrubs"; p/w is for perennials and wildflowers; and g is for grasses. The difference between "shrubs" and "trees" is an arbitrary one, especially with many native plants. Some plants that might be thought of as shrubs in their younger years or on poor sites can develop into 15-20' plants in time on good sites.

Water needs categories include a range of suggested watering frequencies. Plants in the "Low" water needs category may grow well on a favorable site being watered only once a month. The same plants in a more stressful situation (up against hot walls, on south or west-facing slopes, in very poor soils, etc) may need to be watered every two or three weeks to stay healthy. Also, two water needs categories are listed for most plants to indicate how water needs might change in relation to a prolonged drought, especially as temperatures increase in the future. Plants may survive with watering frequencies suggested in the lower use category, but they may need to be watered at the more frequent rates listed for the higher use category in order to thrive. Generally speaking, plants that are healthy and growing under conditions that produce moderate annual growth tend to be more drought tolerant than plants that are pushed to grow at maximal rates.

The supplemental irrigation frequencies in the column labeled "water needs" are only a guideline meant to be used once new plantings are well established, typically after the second or third season; most plants need more frequent irrigation during the initial establishment period. Smaller plants (perennials, shrubs, and trees in smaller pots) will usually be established after two or three seasons if they are adequately watered in those initial years. Large trees may need more frequent irrigation for at least two or three more years before these guidelines apply. These suggested supplemental watering frequencies are meant to be applied during dry spells when there is no significant natural precipitation. As our winters have gotten warmer and drier, watering every two to four weeks in the winter is important to get new plantings well established, and even after they are established, for some plants in the Low to Moderate water use category. The exceptions to the need for winter watering are cacti and desert succulents (Agaves, Yuccas, etc); these should not be watered in the winter. Keep in mind that a light snowfall does not equal a thorough watering; it's best not to count on snow for winter watering, especially for evergreens. Winter rains can help keep plants healthy if they provide at least one-half inch of precipitation in each rain event. Since irrigation systems are typically turned off in the fall, winter watering is typically done by hand, when the temperature is over 40 degrees.

Water needs categories are as follows:

VL (Very Low) is for plants that require little or no supplemental irrigation to grow acceptably once they are established. Most of these are native to a southwestern environment. During hot dry summers they may need a thorough watering every four to six weeks to stay optimally healthy. The goal is to saturate the root zone to a depth of at least 18. If you have watering wells around the plants, fill the well and let the water run through, then repeat the process once or twice more. Plants with this rating can usually be taken off automated irrigation schedules once established. The next category,

L (Low), is for plants that usually need some supplemental irrigation to remain pest and disease free and reach their highest potential in the landscape. They grow well with relatively infrequent irrigation, typically every two to four weeks through the growing season. The third category,

M (Moderate), is for plants that need regular irrigation to grow well here, typically every seven to fourteen days during the growing season. These plants may also need supplemental irrigation monthly during dry winters even after they are established.

Caution categories are listed to help alert buyers to potential problems that certain plants may develop, especially if they are not sited in favorable locations and maintained in good health. The importance of matching the plant to the conditions of the site cannot be overstated; the right plant in the right place is naturally healthier and more pest and disease resistant. If you want to use plants with cautions applied to them, investigate what is meant by the caution category and what that means in regard to using the plants on your site.

The caution categories are as follows:

"Al" stands for alkaline-sensitive; these plants may develop iron and other trace mineral deficiencies (usually indicated by yellowed leaves with darker veins) and grow very poorly or even die in soils which are highly alkaline.

"Exp" is used to denote plants considered experimental in Las Campanas. Some of these are new introductions to the nursery trade, while others have not been used widely enough or long enough in the Las Campanas area to know what their cultural limits and needs are here. Plants that are rated hardy to zone 6 are considered experimental in Las Campanas. Some of the plants labeled "Exp" are native wildflowers that haven't been used in gardens enough to know how they will grow under cultivation.

"Inv" is for plants which tend to be invasive under certain conditions. Though many plants naturally spread to form clumps, these plants can easily get out of hand in certain locations and crowd out or overrun other plants near them. Some of these are useful for stabilizing slopes and rough areas, but they must be sited very carefully.

"P/D" stands for pest/disease potential. Plants marked with this notation have a high likelihood of developing significant problems with pests and/or diseases, when they are grown under less than optimal conditions. Rabbits and deer are some of the most problematic garden pests here and often require special control measures where they are common; they will often eat plants listed on "rabbit-resistant" and "deer-resistant" plant lists when the plants are new (first year) and during droughts. Climate changes are bringing new pests to our area and increasing stress on many plants, making them more susceptible to pest and disease problems. The influx of serious pests is expected to increase in the future.

"Sh" is for plants which either grow naturally in shadier environments or are easier to grow and most drought tolerant when they are planted where they receive some shade, especially afternoon shade. The plants in this group also typically do best in locations where they are sheltered from high winds and heat-reflecting surfaces.

The Comments section includes other information useful in helping to decide whether to use certain plants. The USDA hardiness rating for Santa Fe used to be Zone 5, with potential winter lows between -10 and -20F. In 1991 Santa Fe experienced a Zone 5 winter, but throughout the rest of the 90's and the early part of this century winter lows were in Zone 6 (0 to -10) and even Zone 7 (10 to 0) ranges. In 2012, this led the USDA to change Santa Fe's rating to Zone 6, since ratings are based on long term averages. In February of 2011, there were two nights where the temperatures dropped to somewhere between -10 in the warmest parts of town and -18 in the coldest areas around town, including Las Campanas. Given our location in the southern Rockies, there is always a possibility that we will experience Zone 5 temperatures in an unusual winter. For this reason, plants listed hardy only to Zone 6 should still be considered experimental in Las Campanas.

Tracy Neal has worked in the field of horticulture for over fifty years. He moved to Santa Fe in 1986 to work as the nursery manager at Santa Fe Greenhouses. Since 1995 he has worked as a landscape consultant, designer, and teacher. He became a Certified Arborist in 2000 and is a member of the City of Santa Fe Municipal Tree Board. He currently works as the landscape consultant for the Design Review Committee of the Las Campanas Master Association.