

# Why Gardening is Local

I admit I am constantly annoyed by newspaper articles on gardening that are pulled from the wire services. I've read several articles that were written in San Diego or Chicago and what they recommended just won't work here. The same phenomenon exists with Internet information. So I thought I'd explain why gardening is local – every location is unique for growing plants.

First you need to understand that the definition of annual (lasting one year) and perennial (lasting more than two years) is relative to where you are. For example, in Mexico chile peppers are perennial. That's because where they are grown in Mexico it doesn't freeze. Chiles are annuals here because for us once the plant freezes it dies and quits producing fruit.

The USDA divided the US into areas called hardiness zones based on the annual extreme minimum temperature range for that area. According to this system Albuquerque is in zone 7b and our minimum extreme temperature is expected to be between 5 and 10 degrees Fahrenheit. San Diego is in zone 10 and their minimum extreme temperature is expected to be between 35 and 40 degrees – no freezes. So temperature, which is local, is key to which plants will survive in your area. Temperature is also affected by altitude with higher locations getting cooler temperatures.

The variable "temperature" also defines how long your growing season is, that is the period from the last freeze in the spring to first freeze in the fall. Our last freeze is around Cinco de Mayo and the first freeze is around mid-October. San Diego's growing season is all year round and Chicago's is much shorter than ours. Chicago's minimum extreme temperature ranges from -10 to -5 degrees and that's in the city with a heat island effect.

Temperature is so local that the Valley and the foothills differ – the Valley can get a late freeze, but warms up more quickly in the spring. You see this phenomenon as trees bloom first in the Valley and then gradually the blooms move uphill to the foothills. Plants start to grow and flower sooner in the Valley, but fruit trees may get a late freeze which knocks out the fruit for the year.

Temperature swings within the day and between days also affect which plants thrive and which ones survive. In the East temperatures warm up slowly to summer and cool down gradually to winter. That's not what happens in Albuquerque. We can go from 60 degrees in the afternoon to 20 degrees that night – a 40 degree swing and the next day's high may be 70 degrees with a low of 35. Temperature volatility is greater here so plants adapted to a gradual increase and decrease in temperature have difficulty surviving. They seem to die unexpectedly and you don't know why. These are plants that may want less volatility in temperatures.

Another local variable is light. Most plants need at least 6 hours of sun, but we already know that all sunlight is not created equal. At altitude the sun is closer to the earth and the UV rays are more intense. So in Albuquerque the typical sun requirements specified on plant labels or in books on gardening or the Internet will roast plants not adapted to more UV rays. We need to give our non-adapted plants some afternoon shade; 4 hours of New Mexico sun is probably enough sun.

The angle of the sun varies by location along lines of latitude and to some extent longitude. Northern latitudes are colder than southern ones. Latitude also affects the length of the growing season.

Then there's rainfall/snowfall or the amount of natural water available to a plant. Albuquerque gets around 10 inches annually with a little more like 12 inches in the foothills. Houston gets around 55 inches annually. Where we are trying desperately to hold water in the ground, Houston is trying desperately to get it to drain. They have more water than they need while we don't have enough.

The side effect of too much or too little water affects decomposition of organic matter which affects the acidity or alkalinity of the soil. Decomposing matter acidifies the soil. Because we have very little moisture, we don't get much decomposition – matter dries out instead. Areas of the US that don't have a lot of rainfall generally have basic or alkaline soils. Our pH (the measure of acidity and alkalinity) is between 7 (neutral) and 8. Plants like tomatoes, prefer a pH around 6. An alkaline pH limits the availability of certain micronutrients, primarily iron and zinc, to plants. With alkaline soil and alkaline ground water plants that need iron and zinc don't do well here. The amount of moisture also determines which plants do well here. So we can grow cactus and agaves which don't need a lot of water, but tropical plants are houseplants for us!

Also, with moisture there's the question of when you get it and how evenly it is spread over the year. California gets most of their rainfall in the winter, one reason why Mediterranean plants do well there. They don't get much the rest of the year. We get our moisture during the monsoon season which begins in mid-July and ends in September and a little from snowfall in December/January. The East gets most of their moisture in the spring. Plants adapted to this moisture pattern would not be expected to do well here.

Moisture also determines how much humidity you have. For Houston 80%+ is the typical humidity in summer. We consider it uncomfortable when the humidity reaches 50%. Most plants like a humid environment. Without natural humidity you may have to mist houseplants to keep them alive. The amount of humidity is another local variable.

And wind – how much and when. We get ours in the spring, Chicago gets theirs in the winter or off the lake. Wind helps trees develop strong trunks, but too much can knock them over. So wind is another factor that affects plants and it varies by location – even to which side of the mountain you're on!

Going back to soil, it also varies based on the geology. For Albuquerque it varies significantly even within the city. The Valley has clay soil from years of river flooding, the Heights has a mixture of clay and decomposed granite, plus some caliche layers, the foothills has decomposed granite (soil to be), the East Mountains has clay with a limestone base, and the West Mesa has sand with some areas of lava rock base. The result is that plants within Albuquerque vary by soil type - those liking clay soil in the Valley and those liking decomposed granite, a little shade, or a little more moisture tending towards the foothills.

Another soil variable is how much organic matter it contains. Decomposition increases the amount of organic matter so it's no surprise that we don't have much organic matter in our soil. Little organic matter also means low levels of nitrogen. That loamy earthy soil of the Midwest is not found here – except maybe in the Valley after centuries of agriculture. There's a reason corn grows well in the Midwest and the soil quality is just one reason why.

Organic matter also increases the water holding capacity of the soil. Because our soil dries out so quickly it's better for us to use coir instead of peat moss in container plants. Peat moss once dried out is

difficult to rewet – it becomes hydrophobic. We also need to increase the size of our containers because smaller containers dry out more quickly.

With these variables, and I didn't cover them all, I hope you understand that the best gardening information you can get is local information. This is why I always recommend Judith Phillip's books on gardening and *Down to Earth*, the Master Gardener's guide to gardening in Albuquerque. When I get information from the Internet I search for sites in Arizona, Colorado, Utah, and Texas. I prefer university based or cooperative extension based information because I know it has considerable research behind it. And while this isn't necessarily local information it is at least regional.