

Weather and Climate for New Mexico Gardeners

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New Mexico's weather and climate are complex due to our elevation, dry air, and mountains. Weather and climate are extremely important to gardeners and other agricultural interests.

We are far from the Pacific Ocean and Gulf of Mexico, our major sources of moisture for precipitation. Mountain ranges between New Mexico and the water sources often wring the moisture from the air as the air passes over them. This dry air is subject to wide daily fluctuations in temperature. In addition to precipitation and temperature, wind, dew point (relative humidity), and sunlight intensity are other climatic factors gardeners should consider.

While we have little opportunity as gardeners to alter precipitation, we can irrigate, design efficient irrigation systems, and choose plants wisely with consideration to moisture requirements. We can have some influence over wind by carefully planning windbreaks and structure placements. We also may influence light intensity by choosing planting sites that offer shade from structures and other plantings. We have much less influence over temperature. But by taking into account temperature conditions, we can minimize the negative effects and maximize the positive.

Because of our elevation and inland location, we may experience very high temperatures in the summer and, in some parts of the state, very low temperatures in the winter. However, temperature varies greatly across the state from north to south and from high to low elevations.

These variations in temperature can occur over extremely short distances. Variations in climate over small geographic areas are termed "microclimatic variations." From the mesas and hillsides to the valleys, temperatures differ enough to require attention from gardeners. Temperatures can vary 5 or more degrees between these locations. Because cold air is heavier than warm air and, like water, drains downward, mornings will be colder in the valleys due to cold air drainage from high elevations. Middle elevations will be more moderate, but high elevations will again be

colder.

Such effects may be measured over even smaller areas, such as a single landscape or garden. Low areas will be colder than slightly higher areas. Walls and other structures that interfere with the movement of air can serve as dams and create cold spots. These factors are important to gardeners who must consider microclimates when planting in the spring. However, such areas also will be cooler in the summer and can provide benefits. Gardeners can turn microclimates into landscape assets.

Managing landscape microclimates properly may involve identifying the cold areas and avoiding them when planting warm-season vegetables early in the spring. It also may involve identifying cold areas, such as the north side of a house, for planting apricot trees. In the shade of a house, the trees will blossom later if planted in a sunny location. Trees planted on the north side often will bloom after late frosts and more often produce apricot crops. Orchards planted on north-facing slopes will be protected in a similar manner.

Knowledge of the dew point also is useful. The dew point is the temperature at which dew forms and is based on the amount of moisture in the air. When a cold night is forecast with temperatures just at freezing, many gardeners cover their plots in the spring and fall. Whether or not this is necessary may be determined by the dew point. A dew point above freezing means that dew will form, releasing heat and preventing frost formation. This usually protects the garden from freezing and reduces the need for covering the plants.

Knowing about large-scale weather features, such as low and high pressure areas and their associated wind circulation, helps gardeners track late freezes, potential precipitation, and wind in their gardens. Often, low pressure areas accompanying a cold front will enter eastern New Mexico. A cold front is at the leading edge of a mass of cold air. Sometimes the depth of cold air is not as great as the height of the mountains

to the west of the cold air, but some cold air manages to pass through the canyons, producing cold, harsh winds. Knowledge of this phenomenon is useful for protecting gardens.

El Niño and La Niña also affect New Mexico's weather by altering the path moisture-bearing weather systems and the jet stream that propels these weather systems. Wise gardeners also consider these factors.

Current weather information may be gleaned from newspapers, television and radio reports, and from a variety of Internet sites. Some useful Internet sites for weather include the New Mexico Climate Center, weather.nmsu.edu/; the Weather Channel, www.weather.com/; the Weather Underground, wunderground.com/US/NM/Albuquerque.html; the Western Regional Climate Center, <http://www.wrcc.sage.dri.edu/>; and the National Weather Service Southern Region www.srh.noaa.gov/ and <http://www.srh.noaa.gov/abq/>

