

# **Understanding Your Land**

## **Weather and Climate of the Rogue Valley**

Nestled in southwestern Oregon, the Rogue Valley has an extremely diverse landscape derived from the joining of three mountain ranges of varying ages and structure: the Klamath/Siskiyou Mountains running southwest to southeast, the Coastal Range to the west, and the Cascades to the east and north. The region is drained mainly by the Rogue River and its major tributaries: the Applegate River, the Illinois River, and Bear Creek.

The weather and climate of the region are mainly influenced by the North Pacific Ocean and the westerly winds of the mid-latitudes. The maritime air masses that originate over the Pacific are cooled by the ocean currents offshore and moderate the climate of the region. Seasonally the west coast undergoes shifts between cooler, moister conditions in the winter with a strengthening of the Aleutian Low that brings storms into the region, to warmer, drier conditions in the summer that are associated with the dominance of the Pacific High. On a regional scale, the general north-south or northwest-southeast oriented valleys, with their proximity to the Pacific Ocean, and the number and height of mountain barriers help to create climate conditions of wetter and cooler areas in the western parts of the region and warmer and drier eastern areas. At the local scale, site differences in elevation, topography, and orientation to the sun produce the diversity of microclimates found in the region.

Numerous sites within the Rogue Valley region observe and report weather and climate data. The main station from which most television, radio, and newspaper reporting comes is the Medford Weather Service Office (WSO) site at the airport. Unfortunately, this station is located in one of the warmest and driest locations in the valley, making direct

*You need patience to be a good gardener. If you don't have patience, and you stick with gardening, it will teach you patience.*  
**Bill Turull Jr.**



comparison to most places where people garden difficult. Other locations that report climate information include Ashland, Cave Junction, Grants Pass, the Medford AgriMet station, and Ruch. Research and experience in the region reveal that the Medford AgriMet station, located at the Southern Oregon Research and Extension Center on Hanley Road between Medford and Jacksonville, represents the average of all stations throughout the region.

The complete 30-year climate normal data (defined as the arithmetic mean of a number of climatological elements computed over three consecutive decades) for the Medford AgriMet station reveal trends that local gardeners should know. The table of "Monthly Means and Extremes" shows that the location has an annual mean temperature of 52.8° F with an April–October mean temperature of 60.6° F. Rainfall averages just over 21" for the year with less than 15% of it coming during the growing season. Winter temperatures below freezing and summer temperatures above 90° F are common, with over 97 and 40 days, respectively. Growing degree-days represent a measure of temperature for estimating planting times and maturity potential for crops. Growing degree-days are the number of degrees that the average daily temperature is above a baseline value (50° F for sweet corn, snap beans, lima beans, tomatoes, grapes, and field corn) and then summed over the growing season. During the April to October period in the Rogue Valley, growing degree-days average over 2400.





**Monthly Means and Extremes from the 1971-2000 Climate Normals for the Medford AgriMet Station, Hanley Road, Jacksonville, Oregon.**

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
<b>Mean Temperature (° F)</b>													
Maximum	46.8	53.1	57.9	64.2	71.9	79.9	87.9	87.0	79.8	67.0	51.3	45.1	66.0
Minimum	30.6	32.4	34.6	37.5	42.1	47.5	51.4	50.7	44.4	37.3	34.2	30.7	39.5
Mean	38.7	42.8	46.3	50.9	57.0	63.7	69.7	68.9	62.1	52.2	42.8	37.9	52.8
<b>Extreme Temperature (° F)</b>													
Maximum	68	77	79	93	96	104	105	109	102	95	73	68	109
Minimum	9	0	20	25	29	30	35	37	29	17	9	-8	-8
<b>Precipitation (inches)</b>													
Monthly mean	2.77	2.32	2.26	1.61	1.41	0.77	0.50	0.57	0.95	1.51	3.20	3.27	21.14
Extreme 24-hr.	2.35	2.02	1.84	0.90	1.34	0.91	1.30	0.90	3.66	1.44	2.12	2.54	3.66
<b>Snowfall (inches)</b>													
Monthly mean	1.0	0.3	0.2	0	0	0	0	0	0	0	0	0.9	3.0
<b>Average Number of Days Where Temperature Is:</b>													
Maximum 90° F or more	0	0	0	0	1.6	5.8	13.9	12.7	5.5	0.3	0	0	40
Maximum 32° F or less	0.2	0.1	0	0	0	0	0	0	0	0	0	1.0	1.3
Minimum 32° F or less	19.8	15.3	12.5	7.5	2.2	0.1	0	0	0.9	7.5	13.4	18.5	96.8
Minimum 0° F or less	0	0	0	0	0	0	0	0	0	0	0	0.3	0.2



Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
<b>Average Number of Days Where Precipitation Is:</b>													
.01 inches or more	12.8	11.1	12.9	10.1	7.7	5.1	2.5	2.6	4.0	6.4	14.0	13.8	106.2
.10 inches or more	5.5	5.3	5.8	4.4	4.0	2.3	1.2	1.5	2.3	3.8	7.1	7.3	52.5
.50 inches or more	1.3	1.2	1.3	0.6	0.5	0.3	0.2	0.3	0.5	0.8	1.9	1.7	10.9
1.00 inches or more	0.4	0.2	0.3	0	0.1	0	0	0	0.1	0.2	0.6	0.6	2.6
<b>Degree Days</b>													
Heating degree-days @ 65° F	824	629	573	424	257	100	27	20	120	381	669	846	4854
Growing degree-days @ 50° F	4	10	26	89	235	416	602	594	373	127	11	3	2492

Data Source: Oregon Climate Service

**Average Climate Characteristics for Representative Weather Stations in the Greater Rogue Valley.** All data are from the 1971-2000 climate normals for each station.

Station (Elevation)	Average July Max. Temp. (° F)	Average Jan. Min. Temp. (° F)	Average Mean Growing Season <sup>1</sup> Temp. (° F)	Annual Precip. (inches)
Ashland (1750 ft.)	86.7	29.1	59.3	19.8
Cave Junction (1280 ft.)	91.9	32.0	62.1	62.6
Grants Pass (960 ft.)	88.8	31.1	60.8	31.0
Medford Airport (1300 ft.)	90.2	30.9	63.1	18.4
Medford AgriMet (1457 ft.)	87.9	30.6	60.6	21.2
Ruch (1549 ft.)	89.6	29.6	61.3	25.8

<sup>1</sup>April through October





The table of "Average Climate Characteristics" provides temperature and precipitation data for Medford AgriMet as well as the other climate stations across the region. July average maximum temperatures range from the upper 80s to the lower 90s, while January average minimum temperatures range from the upper 20s to the lower 30s. Average growing season temperatures vary from the upper 50s to the lower 60s. Precipitation varies from 18"-60" across the region (however some locations can get as little as 12").

The growing season, defined by the median dates of the first and last 32° F frost, varies from 138-174 days. The average last frost occurs on May 7 and the average first frost occurs on October 9. First and last frost dates for specific sites around the Rogue Valley are shown in the "Median Frost Dates" table.

***Median Frost Dates for Representative Weather Stations in the Greater Rogue Valley.***

Station (Elevation)	Median Date of Last Spring Occurrence 32° F	Median Date of First Fall Occurrence 32° F	Frost-Free Period (No. of days last to first, 32° F)
Ashland (1750 ft.)	9 May	8 Oct	151
Cave Junction (1280 ft.)	8 May	12 Oct	157
Grants Pass (960 ft.)	30 April	12 Oct	161
Medford Airport (1300 ft.)	28 Apr	18 Oct	174
Medford AgriMet (1457 ft.)	14 May	3 Oct	142
Ruch (1549 ft.)	15 May	4 Oct	138

***Record extremes for frost dates:***

*Latest: June 12, 1932  
Earliest: September 13, 1921*

***Record extremes for the growing (frost-free) season:***

*Shortest: 125 days  
(May 31 to October 3, 1919)  
Longest: 203 days  
(April 25 to November 14, 1944)*

*Data Source: Western Regional Climate Center, 2003 (from the period of record for that station).*



Since temperature decreases on average 3.5° F for every rise of 1000', higher elevations can be more prone to freezes or frost and will have a shorter growing season. However, inversions (an increase in temperature with elevation) can alter this condition in valley areas. In the fall, winter, and spring, cold air commonly drains to the lower elevations and, when combined with heat loss at night, we find the coldest air in the valley bottoms and warmer air in an area called a thermal zone. The thermal zone in our valleys is typically 200'-400' above the valley bottoms and can be approximated visually by the upper level of the fog that commonly forms in the valleys.

In terms of climate classification, the National Oceanic and Atmospheric Administration (NOAA) defines climate zones as regions within a state that are as climatically similar as possible. It classifies the majority of Douglas, Josephine, and Jackson counties as the Southwestern Valleys climate zone. Classifying climates specifically for plants, the two most widely used climate zone maps are the Sunset Zones, also known as the Western Plant Climate Zones, and the United States Department of Agriculture (USDA) Hardiness zones. Sunset zones were developed by the University of California Cooperative Extension and popularized in *Sunset* magazine and their *Western Garden* book. Sunset zones are based on a combination of extremes and averages of minimum, maximum, and mean temperature, rainfall, humidity, and the length of the growing season. As such, this system proves the most useful when trying to judge plant hardiness and adaptability to a certain region. The Southwestern Valleys of Oregon fall mostly in zone 7, which is defined as having a growing season of May to early October with hot and dry summers and extreme winter lows that vary from 9°-23° F. The USDA Hardiness zones are more widely used (nurseries and seed companies typically use USDA zones on their labels). However, these zones are solely based on the average minimum temperature during the winter in a given region. Therefore, the USDA Hardiness





zones are best used for determining winter hardiness or survivability, and the Rogue Valley is largely a zone 8 with winter extremes from 10°–20° F. Using both zone maps, one finds that the region's seasonal contrast between summer and winter suits plants that need dry, hot summers and moist, but only moderately cold winters.

### ***Locating Your Garden***

When deciding where to grow your garden, you'll want to consider microclimates, topography, soil, and irrigation needs. While it is easy to generalize about climate conditions across the Rogue Valley, your specific site may have features that make it colder or warmer, wetter or drier than the norm. For instance, a small topographical variation such as a dip in the landscape, combined with obstructions such as trees or buildings, can create an area where cold air pools. The orientation of the garden plot (i.e., the direction the land faces) will influence many decisions from what to plant to how much to irrigate. North-facing sites will typically have cooler temperatures with greater frost potential and slowed growth, but lower maximum temperatures during the hottest time of the summer. East-facing sites will also have slower growth potential, but will receive good morning sun and typically have lower frost potential. South-facing sites will typically see the strongest growth potential but have high maximum temperature stress potential and therefore higher irrigation requirements. A west-facing site will typically have lower morning sun but higher exposure to strong late afternoon sun. A location that is open to the sun's path across the sky will be able to grow warmer climate crops, while one that has fewer hours of sunlight due to obstructions, such as trees, will likely be limited to cooler season crops or will not fully ripen warmer climate crops.

