

Weather & Gardening

How do I utilize Weather and Climate information for successful gardening?

Many of the plants we buy contain tags indicating that they are annual, perennial, temperate, or tropical. In addition, these tags describe how the plant will respond to weather conditions (temperature, rainfall, wind, light and surrounding structures). While you may not be able to control these conditions,

you can fine tune the location (shady vs. sunny) of the plant that is suggested for the specified zone considering the light, heat and the plant hardiness zone information of your area. This brochure should help you, the gardener, understand how local weather and climate can be utilized for successful gardening.

How does weather affect my garden?



Weather is the ultimate factor determining whether plants will thrive or perish. Temperature, moisture and their extremes have a direct effect on the survival of plants. Climate is the main reason plants favor certain places to grow. Climate is the behavior of the weather which can be described by both average values and extremes over a period of time. Knowing the local climate is a key factor to successful gardening.



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Weather & Gardening

for Metro Detroit



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What are the key weather elements for gardening?

Freezes: Freezing temperatures determine the length of the growing season. Airport (official) temperatures are measured about 5 feet above the ground. As a result light frosts can occur when official temperatures are as high as 36°F. Meanwhile killing frosts are likely when the temperature falls to 28°F. The following table provides the probabilities of these temperatures occurring and the length of frost/freeze-free days in the Metro Detroit.



Spring (Latest Occurrence) temperatures are 36°F, 32°F, and 28°F. Autumn (Earliest Occurrence) temperatures are 36°F, 32°F, and 28°F. The number of frost/freeze-free days for each temperature is also provided in the table below.

Detroit, MI Frost/Freeze Data *				
		Probability		
		10%	50%	90%
Spring (Latest Occurrence)	36°F	May 28	May 10	Apr 21
	32°F	May 10	Apr 26	Apr 11
	28°F	Apr 28	Apr 15	Apr 2
Autumn (Earliest Occurrence)	36°F	Sep 23	Oct 4	Oct 15
	32°F	Oct 4	Oct 17	Oct 30
	28°F	Oct 13	Oct 29	Nov 14
# of Frost/Freeze Free Days	36°F	169	147	125
	32°F	198	174	150
	28°F	222	196	171

* National Climatic Data Center's (NCDC) *Climatography of the United States No. 20 1971-2000.*

When selecting perennial plants for your garden, insure they will survive the winter by utilizing the United States Department of Agriculture's (USDA) Plant Hardiness Zone Map. This map factors in average winter minimum temperatures.



USDA Plant Hardiness Zones

Plant Hardiness Zone	Average Annual Minimum Temp (°F)
5a	-15 to -20
5b	-10 to -15
6a	-5 to -10
6b	0 to -5

Metro Detroit is located in Zones 5b, 6a and 6b, where the minimum annual temperatures are normally between 0°F and -15°F. However temperatures have been as cold as -24°F (Detroit on December 22, 1872). See the following web site for further information on the USDA plant Hardiness zones:

<http://www.usna.usda.gov/Hardzone/hzm-nm1.html>

Heat: Extreme heat stresses plants and can even result in their demise. The American Horticultural Society (AHS) determined Heat Zones based on the average number of days per year with temperatures greater than 85°F. Many plants have this information on their tags, so choose a plant which is suitable to your location.



Metro Detroit normally experiences 31 days a year in which the temperature exceeds 85°F. This places Metro Detroit in the Plant Heat Zone 5 (>30 to 45 days). See the following web site for further information on the AHS Plant Heat Zones:

http://www.ahs.org/publications/heat_zone_map.htm

Wind: Transpiration from the plants and evaporation from the soil causes significant moisture loss. Since wind enhances evaporation and transpiration, on a hot day the wind will increase water needs, which could dehydrate the plant.



Knowing the average wind speed and direction in your local area can help you plan for better gardening. You can reduce the air circulation by building fences and planting hedges. The annual average wind for Metro Detroit is 9.9 mph from the southwest. For day-to-day information, you can make a more informed decision by consulting the

National Weather Service web site for current conditions as well as the forecast for Metro Detroit:

<http://weather.gov/detroit>

Moisture: Plant tissues must contain enough water to keep their cells active. Some plants may be advertised as drought-tolerant, but no plant can survive becoming completely dry. Too much water can cut off the oxygen supply to the roots. Knowing the local seasonal rainfall averages and soil types can help determine which plants may need additional watering, or special planting requirements to avoid over watering.



Metro Detroit receives an average of 32.89 inches of precipitation annually. The image below provides a monthly breakdown of this precipitation.

Detroit, MI
Monthly Average Precipitation
(1971-2000)

