



SMARTGARDEN™ —Microclimates

Take a look around your yard. How many microclimates can you identify? And how can you use them to your gardening advantage?

A microclimate is an area that differs from immediately surrounding areas with respect to climate: It might be warmer or cooler, wetter or drier, exposed to strong winds, or protected from them. Identifying these variations within your landscape can extend your gardening options and reduce problems. Plants that are appropriately sited according to their specific cultural needs grow stronger, look better, and are easier to maintain. And microclimates can often expand—or reduce—your plant choices for a specific area within your yard by a full hardiness or heat zone.

Factors that influence temperature, moisture levels, and exposure to wind include location and density of trees and shrubs, existing structures and paved surfaces, presence of water, and variations in topography.

Existing vegetation. Trees provide shade, and shady areas are typically several degrees cooler than adjacent areas in the sun. Shady spots also tend to stay wetter longer. Some plants that thrive in the sun where summers are cool can be grown in warmer climates if they are provided some shade.

Dense vegetation can also block buffeting winds that cause a rapid loss of moisture by plants and soil. Planting a windbreak to provide protection from prevailing winds is one way you can help create a microclimate in your yard.

Structures. A house, garage, fence, or wall can also serve as a windbreak. These structures cast shade as well—the north side of a wall tends to be cool and damp; the sunny south side will be notably warmer and drier. Such a wall creates two distinct microclimates that are separated by mere inches. Each side will support a culturally distinct set of plants. Although the difference in climate on either side of a wall that runs north to south is more subtle, the west side will tend to be warmer than the east side.

In temperate zones, a south-facing wall, particularly if it receives full sun, is a great place to grow sun-loving tropical or subtropical vines—such as bouganvillea and black-eyed Susan vine (*Thunbergia alata*)—as annuals. The soil warms earlier in the spring boosting early growth. And because the wall collects and holds heat, moderating cooler night temperatures, growth will continue later into the fall.

Because the area is cooler, plants growing on the north side of a building break their dormancy in the spring later than those on the south side. This difference can be used to your advantage. For example, the star magnolia (*Magnolia stellata*) bears early spring flowers that are easily

damaged by frost. To reduce the likelihood of this problem, plant the tree on the north side of your house, where it stays cooler, delaying growth for a critical week or two. By the time the magnolia breaks its dormancy and the flowers open, the chance for a damaging frost is significantly reduced.

Air temperatures are influenced by the material and color of nearby structures: White or light colors reflect daytime light/heat back onto the plants; dark colors absorb the heat. South-facing dark walls can become “heat sinks,” collecting and storing heat during the day and releasing it for several hours after sunset, keeping the immediately surrounding area several degrees warmer.

Hardscaping and soil surfaces. The color of paved surfaces and mulch has a similar effect on nearby plants. Dark mulches absorb heat, and using them is an effective method of warming the soil. Light-colored paving reflects both light and heat back to surrounding areas. Heat-tolerant plants that thrive in sunny locations are usually the best choices near unshaded driveways and sidewalks.

Water. Large bodies of water have a moderating effect on temperature, but even a backyard pond or pool can contribute a similar, though more subtle, influence. Plants located at the edge of a backyard pond not only have more water available in the soil, but also benefit from a warmer and more humid growing environment created by evaporation from the pond surface.

Topography. Unless your yard is flat, its topography will influence your growing conditions. Hot air rises, so sloping ground tends to be warmest at the top. Heavier, cooler air sinks to the lowest point. This phenomenon can create “frost pockets,” where frost forms first in the lowest areas of a yard. Such a location should be noted. Tender herbaceous plants and plants that produce cold-sensitive, early spring flowers will be more likely to be damaged by late or early frosts if they are located in a frost pocket.

Slopes also affect runoff. Water can collect in a low area, making an ideal location for a bog garden. Steep slopes can be tamed and runoff reduced by using retaining walls to create level planting areas.

By carefully observing the nuances of climate within your landscape, you can amplify your gardening options and minimize environmental stress.

Rita Pelczar, Associate Editor