

# Colorado Gardening: Challenge to Newcomers

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## Quick facts...

- Low humidity, fluctuating temperatures, alkaline clay soils and drying winds often restrict plant growth more than low temperatures.
- Selecting plants that tolerate our soil and climatic conditions is key to Colorado gardening.
- Colorado grows excellent flowers, vegetables, and lawns.
- Gardeners who are patient, know how to select plants that will do well, and manipulate the soil and microclimate will be amply rewarded.

Gardening in Colorado can be challenging. The average elevation of the state is 6,800 feet above sea level. Three-fourths of the nation's land above 10,000 feet is within its borders. Due to the high elevation, sunlight is frequently of high intensity and the humidity generally is low. These features, along with rapid and extreme weather changes and frequently poor soil conditions, make for challenges in growing plants.

## Newcomer's dilemma

Newcomers to Colorado often have trouble getting plants to survive, let alone thrive. More often than not, they previously gardened where "you stick a plant in the ground, and it grows." Typically, those from northern states such as Minnesota or Michigan are puzzled why certain trees that did well for them there do poorly in Colorado.

Winter cold is not the only factor that determines plant survival. Low humidity, drying winds, and physical properties of the soil also influence how well plants perform here.

## Soil properties

Many of our population centers are on heavy clay soil. These soils have poor aeration that limits root growth. Thus, the ability of plants to replenish water loss brought about by low humidity and wind is limited. Adding more water to such soils further complicates the problem because the water added reduces the amount of air in the soil, causing oxygen starvation to the roots. Little can be done to modify humidity and wind, so the obvious solution is to improve the soil. See the fact sheet [Choosing a Soil Amendment](#).

much of the added iron to become unavailable. The best alternative is to select plants tolerant of Colorado's alkaline soil. Instead of pin oak, choose bur oak or Norway maple instead of silver maple, etc.

## Untimely snows

In Colorado, heavy, wet snows in the late spring or early autumn are common. Trees, shrubs, and perennials are caught in full leaf or just at the peak of bloom. These "limb-breaker" storms cause severe damage that leaves permanent scars and tends to keep trees to smaller-than-normal size.

Following such a storm, tree diseases tend to increase. Broken limbs and central leaders can cause problems for trees for many years. To minimize damage, choose less brittle trees such as lindens, oaks, and conifers instead of silver maple, Siberian elm, and willow. This, however, brings about another dilemma. The less brittle ones are also the slower-growing ones.

## What about freezes?

Newcomers, particularly those from coastal states such as California, Oregon, New York, and the Carolinas, frequently express surprise and disappointment in the lack of broad-leaved evergreen plants such as mountain laurel, rhododendron, pittosporum, and similar plants. Our highly calcareous soils and rapid changes in our winter temperatures are partly responsible for this. However, the primary limiting factors are low humidity, drying winds, and intense winter sunlight.

Mountain laurel, rhododendrons, and similar types of plants can grow in Colorado if the soils are carefully amended to make them more acidic and where the plants are protected from winter wind and sun. Even broadleaved evergreens that can tolerate alkaline soils and lower humidity, such as wintercreeper, English ivy, kinnikinnick and Oregon grape-holly, will perform best in a shaded north or east exposure. Occasionally, Colorado will experience frosts when plants aren't ready to cope with them. It is not uncommon for mountain communities to have an already short growing season interrupted by a killing frost.

In Leadville with an elevation of 10,177 feet and an average growing season of about 25 days (compared with over 150 in many areas on the plains), a frost may occur in July. Yet, with careful selection of plants, even Leadville can flaunt colorful garden flowers, vegetables and hardy trees and shrubs.

Table 1 lists average frost-free periods for selected cities at several elevations in Colorado. While growing seasons tend to be shorter at higher elevations, use caution when interpreting this table. Note that some higher elevations have a longer season than lower elevations. Compare, for instance, the average growing seasons of Dillon, elevation 9,800 feet with that of Fraser, elevation 8,560 feet. Fraser is lower than Dillon but has a shorter average growing season. A primary reason is air drainage; Fraser has shorter seasons because of cold air drainage from surrounding mountains.

The same air drainage phenomenon can make a difference in the location of a garden. Gardens in areas where cold air is trapped may have earlier frost kill than gardens even a short distance away. Cold air may be trapped by any obstruction on the down-slope side of a garden, such as a hedge, wall, or solid fence. To avoid early cold injury to gardens, do not put hedges, fences, and other landscape features where they may obstruct the flow of air.

The real killers, however, are the infrequent but rapid changes from warm, balmy weather to cold, subzero temperatures. In 1949, a 90-degree F change was recorded near Fort Collins in less than 24 hours. The change from 50 degrees F to -40 degrees F resulted in the ear-popping fracture of entire trees and virtually wiped out

## The brighter side

Up to this point, gardeners might want to throw up their hands and say, "What's the use?" But there is a brighter side. Colorado's many days of sunshine, while leading to some problems already mentioned, enables gardeners to grow some of the best flowers in the nation. The high light intensity produces strong-stemmed plants and flowers with extra brilliance.

Winter sunlight melts snows at lower elevations, reducing snow mold diseases in lawns. The cool, crisp nights and warm days of summer produce healthy lawns. These same climatic conditions enable the home gardener to produce excellent potatoes, cabbage, lettuce, broccoli, cauliflower, and other cool-season vegetables.

The lower humidity not only helps to make the cold days seem less cold and hot days less hot but discourages many plant diseases that are common in more humid areas. Perhaps the brightest side lies in the challenges of problems growing plants in Colorado. Gardeners who are patient, know how to select plants that will do well, and manipulate the soil and microclimate will be amply rewarded.

*Reference: CSU Fact Sheet 7.220*

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