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## Garden flowers for mountain communities

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### Quick Facts

Herbaceous perennials are the best colorful flowers for the mountains.

The flowers listed will grow up to 10,000 feet (3,048 meters) elevation, depending on local conditions.

Adding organic matter to light-colored soils helps to improve the soil and may help soil to hold more heat.

Organic mulches can be used to protect plants from drying out but should be removed in early spring to help soil warm up faster.

Newly planted annuals and perennials may need temporary protection with "hot caps."

Where the growing season is less than 80 days, annuals are best grown in containers, such as window boxes and tubs.

Approximately three-fourths of the nation's land above 10,000 feet (3,048 meters) elevation is within Colorado's borders. High elevation, together with terrain features that trap cold air, reduce the number of frost-free days. The average frost-free period above 5,000 feet (1,524 m) elevation is 138 days; above 6,000 feet (1,829 m), 113 days; above 7,000 feet (2,134 m), 98 days; and above 8,000 feet (2,438 m), only 50 days. Some lower mountain valleys trap cold air and have shorter growing seasons than higher valleys. For instance, Steamboat Springs, at 6,770 feet (2,064 m), has a mere 49 days average frost-free period; Fraser, 8,560 feet (2,609 m) elevation, only 16 days, yet, Leadville, with an elevation of more than 10,000 feet (3,048 m) has an average of 77 frost-free days.



Despite these seemingly overwhelming limitations, annual and perennial garden flowers can be grown and often produce more color than those grown at lower elevations.

### Perennials For Color

A recent survey of 66 mountain communities above 6,000 feet (1,829 m) elevation showed that herbaceous perennials provide the best source of colorful flowers for mountain communities. These are listed, along with some useful characteristics in Table 1. Suggested annuals are listed in Table 2.

### Growing Garden Flowers

The greater amount of solar radiation at higher elevations can be used to extend the growing season. Gardens placed in full sun, such as on south and southeast exposures, usually will thrive. A

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better microclimate will be created for plant growth if the garden can be screened from strong winds.

Light-colored granitic (decomposed granite) soils, common in many mountainous areas, are less apt to absorb heat. Adding organic matter—such as peat, dark mountain topsoil, or manure—will help to improve water retention and heat absorption. On the other hand, darker soils may warm more slowly in spring due to higher moisture content. Soils also may be low in certain essential nutrients. A soil test following the addition of organic material is advised. Contact the local Colorado State University Cooperative Extension county office for soil test information.

Organic mulches can be used to protect perennials from severe drying where snow cover is not likely to remain during the winter. Mulches also can be a disadvantage by delaying spring growth. They should be removed in early spring to allow the soil to warm up.

Perennials should be planted in spring or early summer as soon as the soil can be worked—never in late summer or fall. The gardener should be prepared to provide temporary cover (frost

caps) for both annuals and newly planted perennials.

Annuals and perennials that are established in containers at the greenhouse or in the home should be acclimated gradually to outdoor exposure. About two weeks before anticipated planting time, reduce watering and expose the plants to increasingly longer outdoor conditions. If plants are well-rooted in the containers or are "pot-bound," loosen the outside of the rootball before planting.

At the time of transplanting, use a watersoluble "starter" fertilizer. Various types are available in garden stores. This can be mixed in the water used to water-in the plants.

When the average growing season is less than 80 days, it is usually more practical to grow annuals in tubs or planters that can be moved to protected locations when frost threatens. Very cold freezing periods can temporarily interrupt the normal growing season and destroy tender annuals and perennials. Another alternative is to restrict annuals to window boxes. Heat loss from the building will reduce the chances of frost damage and the plants can be easily and quickly covered.

**Table 1: Garden perennials for mountain communities 6,000 feet to 10,000 feet (1,829 to 3,048 m) elevation.\***

Plant name	Colors	Remarks
<i>Achillea filipendula</i> , Yarrow	Yellow	Dry locations. Fern-like foliage. Easy to grow. Full sun.
<i>Aquilegia</i> (hybrids), Columbine	Various	Most long-spurred hybrids do well. Use rich soil.
<b>**Althaea rosea</b> , Hollyhock	Various	May not flower every year, especially at higher elevations.
<i>Anaphalis</i> sp., Pearly Everlasting	White	Very showy in mass plantings. Flowers dry well for arrangements.
<i>Campanula glomerata</i> , Clustered Bellflower	Purple	One of the most dependable at very high elevations. Flowers cluster at top of short stalk.
<b>**Campanula medium</b> , Canterbury Bells	White	May not be dependable where growing season is less than 50 days.
<b>**Campanula medium</b> <i>calycanthema</i> , Cup 'n Saucer	Purple, Pink, White	Same as above.
<i>Centaurea montana</i> , Mountain Bluet	Blue, White	A low, creeping plant. Young leaves silverwhite.
<i>Chrysanthemum coccineum</i> , Pyrethrum, (Painted Daisy)	Various	Feathery foliage. Usually over 15 inches (38 cm) tall.
<i>Chrysanthemum maximum</i> , Shasta Daisy	White	Observed at 9,700 feet (2,957 m) elevation. Probably hardy over 10,000 feet (3,048 m). Good cut flower. Easy culture.
<i>Delphinium elatum</i> , Hardy Delphinium	Blue, White, Purple	Healthy 4 foot-5 foot (1.2-1.5 m) spikes were observed in Leadville, elev. 10,162 feet (3,097 m). One of the best for mountain gardens.
<b>**Dianthus barbatus</b> , Sweet William	Pink, Red, White	Forms low, colorful mats at higher elevations.
<i>Dianthus pulmaris</i> , Cottage Pink	Rose, White, Purple	Blue-green foliage forms dense grass-like mats.
<i>Dicentra spectabilis</i> , Bleeding Heart	Rose-red	Old-fashioned favorite. Tolerates shade.
<b>**Digitalis purpurea</b> , Foxglove	Purple, Red, White, Pink, Variegated	May not be dependable over 9,000 feet (2,743 m). Flowers appear in second year.
<i>Gaillardia aristata</i> , Gaillardia	Combination Yellow-red	Start seed indoors. Flowers appear first year.

Table 1: Continued.

Plant name	Colors	Remarks
<i>Iris germanica</i> , Bearded Iris	Various	May not flower until July at higher elevations. Full sun.
<i>Iris siberica</i> , Siberian Iris	Violet, White	Observed no higher than 9,300 feet (2,835 m) elevation but probably hardy above 10,000 feet (3,048 m). Moist soils. Late bloom.
<i>Lathyrus latifolius</i> , Perennial Sweet Pea	Pink	Tolerates shade. Useful for trellis cover.
<i>Lilium tigrinum</i> , Tiger Lily	Orange	Other lilies also may thrive but this is hardy and has reliable bloom.
<i>Linum perenne</i> , Common Flax	Blue	Often flowers first year from seed. Erect, branchy plant, sometimes bush-like.
<i>Lupinus polyphyllus</i> , Garden Lupine	Variable	Reseeds readily. Sometimes acts more like a biennial.
<i>Lychnis chalcedonia</i> , Maltese Cross	Scarlet, Pink, White	Striking when in bloom. Blooms mid-August above 9,000 feet (2,743 m).
<i>Myosotis alpestris</i> , Forget-me-not	Blue w/yellow center	A dwarf plant for rocky niches. Cover with evergreen boughs in winter.
<i>Narcissus</i> sp., Narcissus (Daffodil)	White, Yellow	Plant in well-drained soils 6 to 8 inches (15-20 cm) deep. Sunny spots will provide earlier bloom.
<i>Paeonia officinalis</i> , Peony	White, Red, Pink	Flowers appear in late July above 9,000 feet (2,793 m). Well-drained soils.
<i>Papaver nudicale</i> , Iceland Poppy	Yellow, Orange	An arctic species with several cultivated forms. Foliage light blue-green.
<i>Papaver orientale</i> , Oriental Poppy	Orange, Pink, Maroon-red	Flowering period short but showy.
<i>Phlox paniculata</i> , Perennial Phlox	Pink, White, Purple	Flowers mid to late summer above 9,000 feet (2,743 m).
<i>Ranunculus asiaticus</i> , Common Buttercup	Various	Fleshy roots are sold as "bulbs." Easy culture. Moist soils are best.
<i>Sedum acre</i> , Goldmoss Stonecrop	Yellow	Forms bright green, low mat of fleshy foliage. Use in rocky areas.
<i>Sedum spurium</i> , Two-row Sedum	Pink	Variety "Dragon's Blood." Has rose-pink flowers. A good rock-garden plant.
<i>Sempervivum tectorum</i> , Hen & Chick	Pink	Flowers may not appear for years. Flowering plant dies but off-shoot "chicks" soon fill in. Easy culture.
<i>Tanacetum vulgare</i> , European Tansy	Yellow	May not flower where growing season is less than 75 days. Useful foliage plant for hedge or ground cover.
<i>Trollius europaeus</i> , Globeflower	Lemon-yellow	Use in moist, rich soils.
<i>Valeriana officinalis</i> , Heliotrope	White, Pink, Lavender	Fragrant flowers. Leaves feathery. For tall, informal background use.
<i>Viola kitaibeliana</i> , Johnny Jumpup	Violet	Often flowers even under snow cover. Reseeds well.

\*All plants listed have been observed growing in gardens over 10,000 feet (3,048 m) elevation in Colorado, except where noted. Flower dates and plant height vary with number of frost-free days, exposure, and elevation; this information is too complex to be listed here. Hopkins "Bioclimatic Law" (1918) states that flowering usually is delayed four days for every 400 feet (122 m) rise in elevation. This "law," however, is subject to modification, depending upon longitude, latitude, local terrain features and "microclimates."

\*\*Biennials

**Table 2: Annuals for mountain communities 6,000 feet to 10,000 feet (1,829 to 3,408 m) elevation.\***

Plant name	Colors	Remarks
<b>**Calendula sp., Calendula</b> (Pot-marigold)	Yellow, Orange	A good cut flower. Flower heads can be used to flavor soups and stews. Seeds germinate rapidly.
<i>Escholtzia californica</i> , California Poppy	Orange, Yellow	Actually a perennial but performs as hardy annuals. Sow seeds in garden as early as possible. Withstands considerable frost.
<i>Gladiolus</i> sp., Gladiolus	Various	A perennial but treated as annual. Plant corms as soon as soil can be worked. Plant about 6 inches (15.2 cm) deep in warm, sunny location. Dig after first frost and store cleaned and dry in a cool place. Do not let corms freeze.
<b>**Petunia hybrids, Petunia</b>	Various	A hardy annual that withstands considerable frost. Sunny locations are best.
<b>**Tagetes sp., Marigold</b>	Yellow, Orange	Will suffer greatly in first frost. Grows easily from seed and flowers early.
<i>Viola</i> sp., Pansy	Various	Actually a biennial but may act as annual or perennial, depending upon growing conditions.
<b>**Zinnia sp., Zinnia</b>	Various	Starts easily from seed and develops quickly. Best where growing season is over 80 days.

\*Where growing season is less than 80 days, it usually is more practical to grow plants in pots or tubs or other portable containers.

\*\*These species are best started indoors in spring or purchased as growing plants.



Figure 2. Annuals for mountain communities 6,000 feet to 10,000 feet (1,829 to 3,408 m) elevation.

The plants shown in Figure 2 are typical of the annuals that can be grown in mountain communities at elevations of 6,000 to 10,000 feet. These plants are hardy and can withstand the cold temperatures and short growing season of these areas.

These plants are also easy to grow and maintain. They can be started indoors in the spring or purchased as growing plants. They are a good choice for gardeners in mountain communities.

For more information on growing these plants, see the book "Growing Annuals in Mountain Communities" by [author name].

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