Choosing Climate Adapted Plants— USDA Hardiness Map Revised

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Forget those blankets, plastic sheets, and pine-bough teepees. Learn to love where you live. Choose plants to fit the climate. You will be rewarded with a healthy, beautiful landscape.

References are found in magazines and catalogs about the US Department of Agriculture (USDA) Plant Hardiness Zone map.

Using the USDA Hardiness Zone Map

The USDA Hardiness zone map gives the lowest average temperature. Agricultural and ornamental plants have been tested for the lowest temperature at which they will **thrive**.

The USDA has revised the cold hardiness map to reflect the warming climate. If you live in the central part of the US, temperatures are uniform. In California, especially the foothills, the ridges, canyons and valleys create microclimates.

The USDA Hardiness Zone Map shows zones by US Post Office Zip Codes. The new USDA cold hardiness map shows that all of western Nevada County falls in cold hardiness zone 9a with lows between 20-25 degrees F. In western Placer County, Gold Run and Colfax are in zone 9a 20-25 degrees F. As the elevation drops to Applegate, the remainder of western Placer County falls in hardiness zone 9b 25-30 degrees F.

In the Nevada County zip code zones 95946 and 95959, the elevation ranges from below 2,000 feet to 4,000 feet.

Use the new hardiness zone map as a starting place. Before you buy a plant, or lift a spade, learn everything about your site. Placer and Nevada Counties have many microclimates. Are you in a “banana belt,” or “frostbite falls?” Over more than one year, keep temperature records of the lowest lows and the first and last frost date. Select plants suitable for your microclimates.

Microclimates

Compass direction and elevation create microclimates. A north-facing site is colder than a south and west-facing site. Cold air is like water. It runs down hill and puddles at the foot. A site near the top of a ridge is warmer than one at the bottom. The elevation change over a short geographic distance will make the difference between frost or frost-free.

How plants survive the cold

Shorter day lengths trigger plant hormones to begin the process for the survival of winter cold. Carbohydrates are stored in winter for use in the next growing season. When temperatures drop in the fall and winter, less water is held in the tissues. Hardy plants have a higher level of soluble carbohydrates, much like antifreeze. Mature tissue with brown coloration is the most hardy. Young plants are less able to withstand cold.

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Fluctuating temperatures in fall, winter, and spring can result in plant injury. In some species, hardiness can be lost after several days of warm temperatures. At 50 to 60 degrees F, carbohydrates and water begin to move towards buds and shoots. Late winter and spring frosts then can cause injury in these non-hardened tissues.

Many flowering shrubs and fruit trees have chill hour requirements. Low-chill fruit varieties will bloom in the false spring of February, only to have the blossoms or immature fruit killed by late spring frosts. Once a plant has had enough chill-hours, warmth will trigger bloom. Choose varieties that have chill hours that match your climate zone. Nursery personnel, Master Gardeners and on-line references will help you make the best choice.

Recognizing cold injury

Damaged tissue usually browns after it thaws. Look for damage first to flowers and shoots, then in canes, stems and branches. Often plants may seem to have escaped frost damage. Then, in early summer, the plant's damaged vascular tissue cannot support transpiration (the movement of moisture to the leaves) and the plant dies in summer from **cold injury.**

Diseases and injuries from cold temperatures

Cold may cause cracking in the bark of plants. This damage can happen in the coldest weather or after experiencing false spring temperatures in late winter. Damage occurs most frequently in plants that are not adapted to the area. This is true for plants from colder or warmer regions.

Cracks in bark allow disease organisms to enter and infect. Roses and many other ornamentals may develop bacterial canker if disease enters frost cracks. Thin bark on trees such as maples and on young trees can be warmed enough by bright sunlight to become active and begin the flow of food from the roots. This is especially true if the tree is receiving reflected light. Bark injury occurs when a sharp nighttime temperature follows warm daytime temperatures. The bark dies on the exposed side from sunscald.

Reducing cold damage

- Paint thin-bark trees with 50% interior latex and water.
- Avoid applying high nitrogen fertilizers in late summer and fall. Nitrogen promotes succulent growth that is prone to freeze damage.
- Pruning stimulates growth & should not be done after late summer.
- Cold-damaged plants should not be pruned until new growth appears.
- Keep soil moist to increase heat retention and prevent freezing plant roots.
- Pull organic mulches away from plants in winter. Bare soil absorbs heat during the day and re-radiates it at night, reducing frost injury. Soil covered with mulch does not absorb as much heat and radiates less. Clear plastic, not black, increases soil heating.

Plant the right plant in the right place—you will be rewarded with healthy, vigorous growth.

References

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