Putting the Garden to Bed

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Fall is the time to prep your garden for healthy and vigorous spring growth. Winter in Tahoe can sometimes severely damage our landscape plants, snow or no snow. Winter sun, wind and cold temperatures can dry and turn evergreen foliage brown, damage bark, injure or kill branches, flower buds, and roots. Winter drought can kill entire trees, shrubs and plants. Snow and ice can break branches and topple entire trees while repeated freeze and thaw cycles can heave our new perennials right out of the ground.

Caring for Perennials

Planting Time

Fall is for planting. It is an ideal time to plant, divide and transplant your perennials to give them a jump start in the spring. Because perennials don't have the weight of woody shrubs and trees to hold then down into the soil, their roots need extra time to grab hold before the soil begins freezing and thawing, ideally six weeks before the ground freezes.

Cutting Back

When the stems and leaves of perennial plants dry up, cut them back to 4-6 inches for neatness and disease prevention. Some perennials and biennials are evergreen which means that not all foliage dies back in the winter. For these perennials, such as candytuft, heuchera, hollyhock, lupine, Oriental poppy, catmint, lady's mantle, Canterbury bells, remove only the dead parts of the plant. The remaining plant stubs and foliage will catch the snow and pine needles and protect the plant's crown.

Winter Protection

Cover marginally hardy and perennials and newly planted perennials with pine needles and evergreen boughs after the soil freezes to minimize damage from freeze-thaw cycles. In early spring this layer would need to be removed to reduce the chance of crown rot. Repeated freeze-thaw cycles damage roots and can heave the plant up from the ground (frost heave). Damage from frost heave can also be minimized by planting in well

drained garden beds. Soggy ground will freeze and thaw repeatedly and susceptible plants will heave. Even a bit of exposed root can cripple or kill a newly planted perennial. That being said, routinely check your new plants for holes next to the root balls left by squirrels burring their fall food finds. Not if, but when you discover them, refill the hole and water thoroughly to eliminate air pockets where water can collect and freeze.

Caring for the soil

"Amend the soil" is one of the top requirements in every gardening how-to book and article. For good reason. Roots are essential for plant survival.

- **Preparation**
  In densely planted areas, at or before planting time, amend the entire perennial bed instead of only amending individual planting holes. Soil amendments such as finished compost add nutrients, reduce soil compaction, and increase the moisture holding capacity of our native Tahoe soils.
- **Fertilizer**
  In the fall after the plants have gone dormant, adding slow release organic fertilizer can aid in plant establishment feeding the plant roots, crowns and stolons, in a sense fattening them up for winter so that they can be well fed when they rise from the ground in spring.
- **No Salt**
  Avoid using rock salt-based ice melt near planting areas. Salt interferes with a plants fine roots, inhibiting their ability to absorb the things they need to grow: water, nutrients and oxygen.

Overwintering Potted Plants

If you don't want to plant your potted perennials in the garden this fall, pot plants that are at least two zones hardier than your USDA planting zone, so for Lake Tahoe that is typically either zone 3 or 4. You can also bury the pot with the lip at or even with the soil in the ground to insulate the roots. The best location to overwinter hardy potted plants outside in the shade, watered and covered with snow for moisture and insulation. If you cannot move the pot to the shade, shade the south and southwest side of the pot and keep it covered with snow. Repeated freeze-thaw cycles will damage the roots and kill the plants. Some gardeners bring their dormant perennials inside the cold garage or green house to overwinter but if you do this, do not forget to let the soil completely dry out. If you know you are going to leave your pot sitting outside all winter you should choose a container that won't break from the freeze/thaw action such as clay, glazed and porcelain pots, unless they are treated for freeze resistance.

Planting Bulbs

The best time to plant spring blooming bulbs such as tulips and daffodils is after the squirrel food collection and storage frenzy that tends to happen at the beginning of autumn. Newly purchased bulbs should have plenty of energy stored to yield beautiful first year blooms; however, the blooms will diminish over the years if they are not planted with bonemeal or superphosphate. Bulbs need phosphorous to encourage root development. When planting, mix the phosphorous fertilizer into well drained amended soil at the bulb root zone because phosphorous moves very little once applied to the soil. Wait to water until spring after they have sprouted if there is not already significant soil moisture, and water deeply to reach the depth of the bulb roots. Many gardeners use a granular repellant in the bulb hole at planting time to deter hungry garden visitors. Alternate techniques include excluding the critters with wire mesh in the ground, planting in pots with wire mesh on the surface, and waiting to plant just before the ground freezes. Learn more about planting and caring for bulbs at: http://extension.illinois.edu/bulbs/planting.cfm.

Some bulbs that are not attractive to rodents include:

- *Daffodils*
- *Alliums (including onions and garlic)*
- *Scilla*
- *Squill*
- *Hyacinth*
- *Muscari (grape hyacinth)*
- *Fritillaria*

Trees and Shrubs

Watering

Begin cutting back on watering in late August to let plants know that it is time to prepare for winter. Cooler air temps and less fall water hardens off plant tissues. As a plant hardens off, water moves from inside of the cell to the intercellular spaces. As this happens, the solutes in the cells increases and as with salt water, the freezing temperature drops. In plants that are unprepared, not hardened off, the frozen moisture between the cells (which also helps protect the cells) can sublimate away (ice to vapor and v.v.), killing the plant tissue by freeze damage. It is okay to let your plants occasionally wilt but do not let them dry out. When fall color has visited your garden you can increase the watering so fall root growth can be maximized, two to three good soaks ought to do it. Check how deep the water penetrates the soil to make sure that you add enough water to moisten the root zone. For groundcovers and perennials that is typically 6-10", shrubs 12-24" and trees 18-36". Learn more about efficient watering techniques at: https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1298-2017.pdf.

During winter months where we do not have snow cover, plan on watering your landscape to protect the plants from winter desiccation, especially new plantings and evergreen and broad leaf trees and shrubs that don't drop their foliage in the winter. Learn more in this informative fact sheet: http://extension.colostate.edu/docs/pubs/garden/07211.pdf.

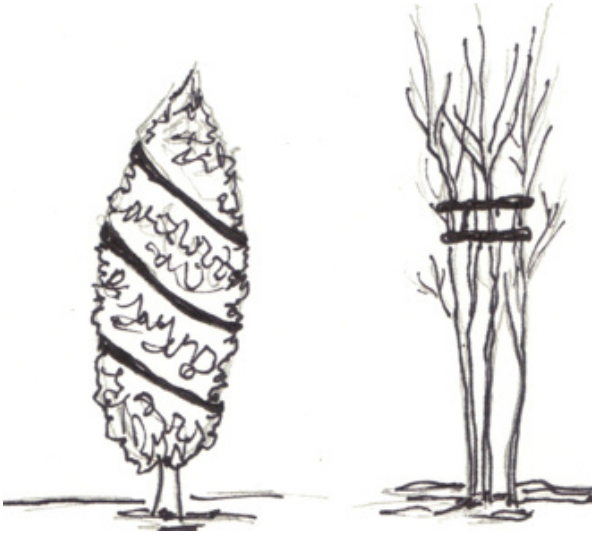
Planting

Plant or transplant any trees and shrubs while the soil is still workable this fall. The days are shorter but the soil is much warmer than in spring. Plants always look their best when they've had a winter in the ground allowing them to grow with our natural spring weather. Deciduous trees and shrubs put on as much as 80% of their annual root system expansion in the fall. The secondary root push occurs in early spring, before the leaves emerge and before most folks get out and plant. Your plants will be far better off than if you wait until spring. Fall planting is basically planting for next year.

Pruning

Fall pruning, after dormancy is not recommended unless the branch is at risk of breaking with snow load or if the tree or shrub is overly vigorous. If the woody plant is still green into early September, the woody plant should have time to heal the wound before the drying and cool weather of winter can dry the plant at the wound site. Pruning is best done in early spring or during the growing season depending on when the plant blooms. Spring flowering shrubs that bloom on last year's growth are best pruned after bloom so the season's blooms are not sacrificed. Summer blooming woody plants bloom on new wood can be pruned in the spring when there is time for new wood to grow and support the summer blossoms. Find more information about maximizing shrub blooms and vigor at: https://static.colostate.edu/client-files/csfs/pdfs/PruningFloweringShrubs_619.pdf.

Winter Wrapping, Tying and Staking



If you stake and wrap the lower branches of new trees and shrubs for the first few winters, it protects and preserves their important "photosynthetic potential" (energy producing leaf surfaces) that feed the trunk to improve caliper and help develop good taper. Avoid damage to your brittle trees and shrubs by tying them up after they have dropped their leaves. Start by tying the heavy duty brown or clear tree tape to the tree stake below the lowest branch, then tightly wrap up to the top then back down to the starting place pulling in the branches with each wrap.

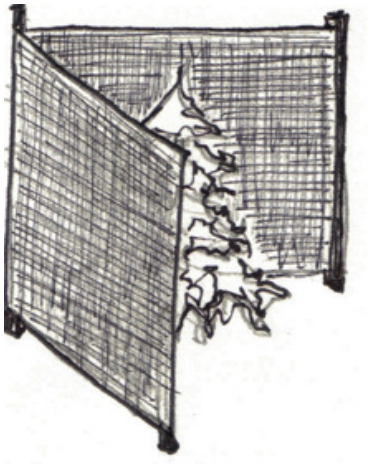
Some broadleaf evergreen shrubs such as holly or Rhododendron can be shaded from winter sun with shade cloth (row cover) to decrease transpiration and winter desiccation. But do so with caution as doing so may increase chances of snow damage.

Winter staking differs from summer staking. In the winter, if needed, you only need one sturdy stake, such as a 10'x 2" treated lodgepole stake. With recently planted trees or shrubs, position the stake outside of the tree root ball. Either position the stake between the tree or shrub and the source of most of the snow (snow blower, roof sheds) or position it on the side where the sun can bake and damage new thin-barked trees such as fruit or maple, on the southwest side. Always use a soft flexible material to tie tree to stake to avoid damage to the tree. Summer staking utilizes 2 stakes in areas of high wind. Make sure to follow staking guidelines in this case to encourage thick study trunks.

Protecting Trunks

The thin, soft bark on the trunks of young or recently pruned deciduous trees, particularly maples, ash, golden chain, hawthorn and fruit trees, are susceptible to sunscald. Sunscald appears as elongated, sunken, dried or cracked areas of dead bark, usually on the south or southwest side of a tree. Sunscald occurs when the sun warms the tree trunk in winter, activating dormant cells as would typically occur close to spring when the tree comes out of dormancy. The active cells ultimately are destroyed when evening winter temperatures drop; this can lead to dead branches at the top of the tree. Wrapping the trunk of the tree in the fall is an effective way to protect from sunscald. Materials such as: corrugated plastic trunk wraps, trunk mesh, cloth wraps, bituminous paper or white latex paint will help to insulate the trunk of the tree and reflect sunlight. You can also reduce winter sun exposure to the trunk by orienting the lowest branches and the tree stake to the southwest to shade the trunk.

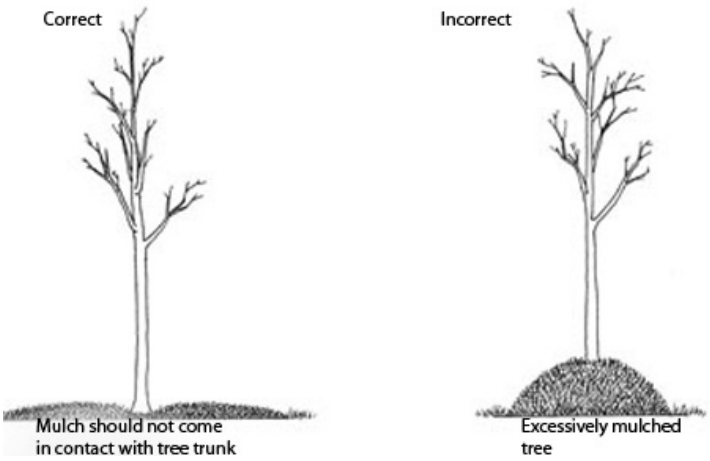
Preventing Evergreen Winter Burn



Newly-planted evergreens are susceptible to winter-burn, which results from the inability of the young roots to absorb enough water to prevent excessive water loss from winter wind and sun. You can reduce water loss by building a windbreak/sunshade around evergreen plants. Screening is a better option than wrapping because it allows better air circulation and won't potentially wick moisture away from the plant. Three stakes and a roll of burlap usually will do the trick. Hammer stakes into the ground and staple burlap onto them or prop pine or fir boughs against or over evergreens to protect them from winter wind and sun, and to catch more snow for natural protection. Better yet, make it easier on yourself and plant evergreen such as yew, hemlock, and

arborvitae on north and northeast sides of buildings or in areas protected from wind and winter sun. You also do not want to prune after August as pruning can induce new growth which is susceptible to winter burn.

Protecting the Roots with Mulch



Roots do not become dormant in the winter as quickly as stems, branches and buds, and roots are less hardy than stems. Many factors influence winter soil temperature:

- Moist soil holds more heat than dry soil, so frost penetration will be deeper and soil temperatures colder for sandy or dry soils.
- Snow cover and mulch act as insulators and keep soil temperatures higher.
- With newly planted trees and shrubs, cracks in the planting hole allow cold air to penetrate into the root zone, reducing fall root growth or killing newly formed roots.

The autumnal thermal overturn is just around the corner when soils begin to freeze and stay frozen. Autumnal thermal overturn is when the average air temperature stays colder than the average soil temperature. Ideally we'll get a good deep frost before the snows comes because it makes digging harder for voles. When a blanket of snow does fall it will keep the surface of the ground frozen protecting plant roots from damaging freeze-thaw cycles. Deep in the soil the earth is consistently warm and once the blanket of insulating snow covers it, the soil begins to thaw allowing roots to continue to expand. If we don't get a good snow cover after the ground freezes, as we had in past winter droughts, you can cover the soil with additional mulch, a thick 3-4" layer, new trees and shrubs will benefit from 6-8" of mulch over the root zone. Mulch accomplishes two key things:

1) insulates soil and roots against temperature extremes; and
2) slows water loss from soil.

Be cautious not to pile mulch against the shrub and tree trunks. If the fall has been dry, water heavily before the ground freezes to reduce frost penetration. If you end up applying overhead water in the winter, make sure that you are watering the soil and not just the mulch.

Learn more about protecting the roots of your trees and shrubs at https://extension.umn.edu/planting-and-growing-guides/protecting-trees-and-shrubs-winter#deer-972413.

Insect and Disease Prevention

If you have had diseased foliage, remove the leaves from the garden. Fall and early spring applications of horticultural oil spray will help to smother insect eggs that might over winter. Lime-sulfur sprays are for dormant season use and aid in the prevention of insects and diseases such as spider mites. You can learn more

about identifying and managing garden pests by visiting UC Pest Notes at http://ipm.ucanr.edu/PMG/PESTNOTES/index.html.

Lawn Care

Fall is an ideal time to treat established lawn areas with a core aerator to reduce soil compaction and buildup of thatch materials. Buildup of thatch is caused by overgrowth of surface roots which interferes with the ability to get water, air and nutrients to grass roots. And don't worry about raking up the soil cores because they will degrade into the soil under the snow. After your last mow of the season, consider adding nutrients by applying a thin layer (less than ¼ inches) of high quality fine textured compost to the lawn, spread with a rake and water it in. If you use fertilizer, select a fertilizer that includes slow acting water-insoluble nitrogen such as sulfur-coated urea, urea formaldehyde, Isobutylidene diurea (IBDU) and organic fertilizer. This type of fertilizer releases nitrogen over weeks instead of days and is not easily leached through the soil past the root zone during rain events. And don't forget to cut back on your watering as the days cool and shorten in length. Learn more about fall turf care in this UC Master Gardeners of Lake Tahoe article: https://ucanr.edu/sites/mglaketahoe/files/290686.pdf.

Seeding Wildflowers

Make a perfect home for pollinating insects and plant a wildflower garden this fall. For best results, start your wildflower garden with a generous helping of organic material mixed into the soil to hold moisture and to provide organic nutrients for your seedlings. Source your seeds locally when you can and insure that it doesn't include invasive species and includes species suitable for your site and desired outcome. To learn more about starting a wildflower garden, visit our local Tahoe seed resource at http://www.comstockseed.com/ .

Water Wise Landscape Consultations

South Tahoe Public Utility District customers can call to schedule free site visits to identify ways to make your landscape and irrigation system more water efficient. They also implement a Turf Buy Back and Efficient Irrigation Rebate Programs to help you maintain a beautiful Tahoe friendly lawn and landscape. Learn more at https://stpud.us/waterconsv/rebates-and-services/.

UCCE Master Gardeners of Lake Tahoe

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