

# Tree, Shrub, and Perennial Planting and Care Guide

## East Pierre Landscape and Garden Center

### **FIRST AND FOREMOST:**

Before digging, contact 811 or OneCall, to locate underground utilities. A two business day period is required to allow the locating to be performed so plan ahead before starting to dig. This not only is the law but also a safety measure that could prevent injury or death.

### **Site Preparation, digging:**

If you are planting a bare root plant, please use our bare root planting guide. For containerized or balled & burlaped trees, dig a hole twice as wide and half again as deep as the soil ball. By digging up an area larger than the root ball it is easier for the roots to expand once the loosened soil is reintroduced by backfilling. Before the plant is placed into the hole add enough of the removed soil back into the bottom of the hole so that when the root ball is put in the top of the root ball rests 1-2" higher than ground level. The extra loosened soil will compact down making the top of the root ball level with the surrounding ground. Running a length of board or string from side to side across the hole makes it very easy to determine where ground level is. If you use an auger or other mechanical method to dig, roughen up the sides of the hole to eliminate any smooth surfaces that may make it hard for roots to penetrate.

If the native soil is very poor (i.e., a lot of clay, rocks, or just generally lacking in organic material) you may want to amend the soil before putting it back into the hole you just dug. Prior to planting, thoroughly mix equal volume of organic amendments with the native soil and use that mix for backfilling. Soil amendments can be top soil, potting mix, peat moss, compost, sand, or a combination. If you're unsure of what amendment is best for your soil, ask us and we'll help determine what might work best. The mix of native and amendment creates a wide transition zone between the native soil and the soil surrounding the root ball making it easier for the roots to grow farther away from the plant. If you do have really poor native soil and you use 100% perfect soil to backfill, all you've done is create a large pot in the ground. Different soil types have very different moisture retaining abilities. If there are abrupt changes in soil moisture characteristics, this difference can restrict root growth and potentially create water drainage issues.

#### Special Note About Clay Soils:

Clay soils are notoriously poor for allowing water to drain. If there is no or poor drainage most plants will not survive. A simple test to determine if your soil does in fact drain is to dig the hole to planned depth then fill it ½ to ¾ths full and mark the level of water on the side of the hole. Walk away and come back at least 2 hours later and see where the water level is. If there is no change at all or if it barely went down and you do not have a plant that tolerates saturated soils, do not plant there, the plant will die!

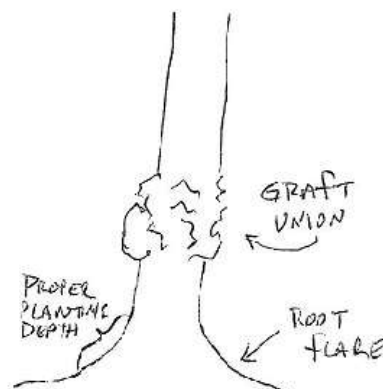
Most plants and especially trees will not need fertilizer right away and maybe not even for their first year in the ground. However if you are going to fertilize the plant, it's best to thoroughly mix in a slow-release, complete fertilizer that's high in phosphorus (the middle number on fertilizer packages) to the soil or soil mix that you will be backfilling with. Avoid high nitrogen fertilizers (the first number) as too much nitrogen can be very harmful to a newly planted plant. Never put fertilizer directly on the roots of your plant and always use it in accordance with label directions.

## Planting the plant:

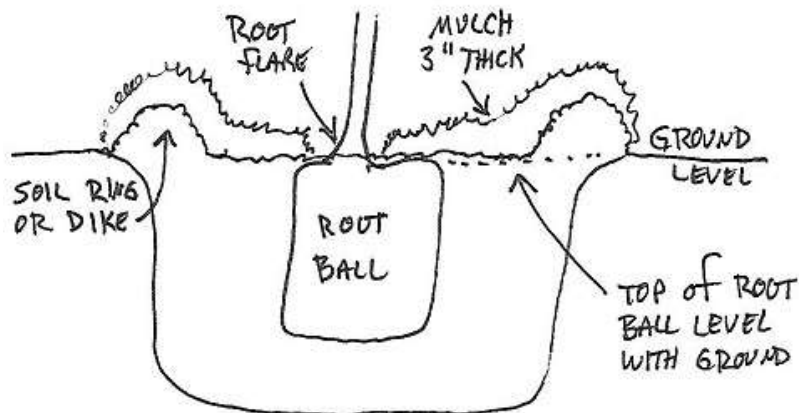
Remove the plant from the container at the planting site while trying to not disturb the root ball as much as possible. Root balls can usually be freed most easily by tipping trees and larger shrubs on their side and rolling them while gently pulling the pot away from the plant. Cutting the pot off is also an option but in doing so make sure to avoid cutting into the root ball. If roots are sticking out of the bottom of the pot and you can't get the roots to slide back through the holes, it's much better for the plant to cut the pot off rather than to cut the roots off. There are some limited growers who use wooden or other biodegradable materials for their pots. Only in these cases should the pot be left on; you should be given special instructions as to how to treat the pot. Balled and burlapped trees have a wire net around the roots and burlap. The wire and burlap should be left on but peeled back off the top of the root ball.

If the roots are tightly bundled (root bound) or follow the contours of the pot wrapping around the plant, use your fingers and hands to gently pry the roots away from the root ball. The more root bound a plant is the more the root ball should be disturbed before planting. However never completely break up the root ball as individual roots are easily damaged. Only in the case where a root is encircling the trunk or where there is obvious physical damage to a root caused by mechanical means or insects should roots be cut off.

Once the plant is in the hole, hold the trunk erect and straight, even if that means the root ball is crooked. Make sure the trunk or stem is centered in the hole and straight from all sides. If there are roots that you pried away from the root ball, try to place them radiating away from the center of the root ball. With few exceptions all plants should have the beginning of their root flare showing just above ground level. Most grafted plants should have their graft union completely exposed, a rare exception being grafted roses which may benefit from having their graft completely buried 4-6" if harsh winter weather is a concern. Once the plant is properly placed, begin backfilling around the root ball using the original soil or a soil mix as mentioned above.



As you fill the hole, backfill evenly around the plant to keep air pockets to a minimum. It's good to check periodically that the plant is staying straight in all directions while backfilling. Once your planting hole is backfilled approximately 3/4th full, water the plant thoroughly to eliminate air pockets in the backfill. Correct the plant for straightness during and after this watering. Once the water subsides, complete filling the holes and with extra soil build a circular ring or dike around the plant. This dike should be 2-6" high depending on the size of the plant, and extend slightly beyond the edge of the hole's sidewall. This will help keep water over the roots of the plant and the loosened soil around the roots, and prevent water runoff. Then finish the planting by watering in thoroughly again. Keep an eye on the dike and make sure that if any dirt from the dike washes onto the top of the root ball that it is periodically removed. If too much accumulates on the root ball, the effect is the same as if the plant was planted too deep.



## Care After Planting, Mulching

Plants benefit from mulching in many ways. A 3" layer of mulch will help retain soil moisture, reduce wide fluctuations in soil temperatures throughout the day and the year, and stop most weeds from germinating. Having mulch instead of lawn grass immediately around the plant also eliminates the risk of mechanical injury to the plant by mowers and trimmers. The mulch should cover an area at least as wide as the water retaining dike around the hole you dug. Mulch can be organic (shredded bark, bark chunks, ground tree parts, coco liner discs) or inorganic (rubber mats, rock, or the like). Do not pile mulch directly against the stem or trunk of the plant. Keep mulch a double finger width away from the stem or trunk to prevent moisture build-up against the bark or allow harmful insects protective cover all the way to the plants.

Weed barrier fabric placed beneath the mulch will help prevent weed growth but the fabric must be porous to allow water and gasses to pass through. Do not use plastic sheeting as it does not allow for this movement and can result in the suffocation of the plant's root system.

Staking a tree can help it stay straight as it establishes itself in the ground. Trees will become stronger without staking so if it's possible avoid staking. However, if the tree is planted in an open, unprotected area that undergoes a lot of wind, it's best to stake it. When staking a tree avoid damaging the roots by driving the stakes into the ground well outside of the existing root ball. Plan to use 3 stakes placed equally around the tree rather than 2 as 3 points of support will hold the tree better from any wind direction. Whatever material that is used to circle the tree trunk should be at least  $\frac{3}{4}$ " wide and made from a soft material such as nylon strapping or wide rubber hose. Do not use wire or thin rope that has the potential to dig into the bark as this can eventually girdle the tree thereby killing it. The line holding the straps to the stakes should be slightly taught so that the tree does not rock in the wind. Check the stakes, line, and straps periodically to make sure nothing has loosened up or that the straps have dug into the bark. Plan to remove the stakes after 1 year or less. If the tree is deciduous (loses it's leaves in the winter) a good time to think about removing the stakes is late fall when the tree has no leaves. A tree without leaves has much less wind resistance than a fully leafed one and much less likely to need the support staking provides.

## Care After Planting, Watering

After planting, the most important thing is for the plants to receive regular watering. **DO NOT RELY ON LAWN SPRINKLER SYSTEMS TO ADEQUATELY WATER TREES AND SHRUBS!** There is not a set schedule for watering frequency and how much you should water as environmental conditions (soil type, sun exposure, topography, daytime and nighttime temperatures, wind, and humidity) combined with botanical conditions (type of plant, amount of leaves on the plant, size of the plant roots, age of the plant, etc.) all determine how quickly the plant uses the water available to it and when it needs watering.

Never water automatically without first checking the soil to determine if watering is needed. To do this, stick a finger in the ground as far as you can. For most plants if you find the soil is dry or only slightly damp only then should the plant should be watered. Plants in sandy soils will need to be watered more frequently than those in clay soils. **DO NOT RELY ON LAWN SPRINKLER SYSTEMS TO ADEQUATELY WATER TREES AND SHRUBS!** Roots will grow best where oxygen and water are most available. Short (15 minute), frequent (2-3 times per week) watering will result in the development of a shallow root system. Watering deeply, thoroughly, and only as needed will encourage a deep and healthy root system that enables plants to withstand environmental stresses.

To properly water trees and shrubs the water must be concentrated around the plant. Water at the base of the plant, not on or through the foliage. Soaker hoses, drip irrigation systems, specialized water bags, dedicated hose sprinklers (that attach to the hose end, NOT the underground lawn irrigation system), or hoses dribbling water can be used. Opinions vary but a favored method is the dedicated hose sprinkler because it usually can cover the entire root area at once, it's easy to move from plant to plant, and you can measure

exactly how much water the plants are getting (see below). Drip systems are favored by some because they distribute the water right to the plants and the convenience that the whole system stays in place.

A recently planted bare root tree needs a pint to a quart of water daily, a newly planted 5' tall ornamental tree needs 2-3 gallons per day, and most established trees with a trunk 2" in diameter or more will need 20 gallons of water weekly, especially in hot, windy periods. Most tree roots are at least as far away from the trunk as the tree is tall. The critical watering distance from the trunk is 2/3'rds the height of the tree. So for a 30' tall tree the critical watering area is a circle 20' away from the trunk. For established trees, deposit two inches of water each time. To measure watering depth using a dedicated hose sprinkler, place several empty containers, like tin cans or plastic cups, in the radius of your lawn sprinkler. When the average depth in the containers is two inches, you've adequately watered your tree and encouraged strong root growth.

As the plant matures and depending on what type of plant it is the watering regime may change. For instance, cactus or succulents are usually very drought tolerant and have very different moisture needs compared to most ferns or any other plant that requires moist conditions. Plants in sandy soils require more water than the same plants planted in clay soils. For the first several weeks if not months after planting, all plants will need regular watering attention and the only way to tell if your newly planted plant needs water is to check with your finger.

And if we haven't said it before, we'll say it now: **DO NOT RELY ON LAWN SPRINKLER SYSTEMS TO ADEQUATELY WATER TREES AND SHRUBS!**

## Care After Planting, Fertilizing

Established plants may benefit from fertilization. Spring is generally the time of the year when plants have their greatest flush of growth and therefore their greatest need for nutrients. Fertilizer comes in many forms and can be applied through root feedings or surface applications. Because fertilizer can draw moisture away from the plant, it's a good idea to water thoroughly both before and after the application if weather conditions are dry. We can assist you in selecting the product best suited to your needs and instruct you on how to use it.

Unless the plant is suffering from a diagnosed nutrient deficiency, never apply nitrogen (the first of the three numbers on fertilizer containers) after mid-summer. Nitrogen promotes new growth and in fall or early winter new growth is particularly susceptible to winter damage and could cause the plant to not harden for winter as it normally should. On the other hand, phosphorus and potassium (the 2<sup>nd</sup> and 3<sup>rd</sup> numbers on fertilizer containers, respectively) can be applied in the fall to help the plant survive winter and prepare for spring.

In problem situations, a soil test to determine your soil type, pH, and nutrient levels is tremendously helpful. This can enable you to identify and treat a specific problem affecting the health of your plant instead of guessing at what might be wrong. County extension offices can provide information and instruction on soil testing options in your area.

In South Dakota starting somewhere east of the Pierre area and extending westward, native soils tend to be very alkaline (high pH). High alkaline soils produce several problems for plants that grow very well in neutral or slightly acidic soils. Chlorosis, indicated by a yellowing of the leaves while the veins remain green, is a common high alkaline caused problem in some maples, oaks, magnolias, river birch, and other plants as well. In these cases the plants lack iron and even if iron is abundant in the native soil it's unavailable to the plants due to the high pH level. Several solutions exist to either provide iron directly to the plants or to decrease the soil pH thereby making the existing iron in the soil available to the plants. If your plants do turn chlorotic, ask us for help in determining which treatment is right for you.

Fencing for deer and tree tubes for rabbits are recommended for overwinter protection against the damage these animals can inflict. Tree tubes should be removed in the spring when alternative food is available for the rabbits and reinstalled in the fall.