

Watering During a Drought



JOLENE ADAMS

How many times have you heard the question, "How often should I water?" The REAL answer: "When your rose needs it!"

The Goal

For your roses to be as self sufficient as possible.

THE BASIC GUIDELINES

- 1 When building a rose bed, amend your soil with compost and mulch.
- 2 Soak your new rose for several hours before planting.
- 3 Build watering basins around new plants.
- 4 Hand water gently for at least the first week or two, and just fill the basin daily.
- 5 Water established roses deeply and thoroughly when you water.
- 6 Allow as much time between waterings as possible.
- 7 Pay close attention to your plants their first year in the garden.
- 8 Adjust your watering as weather conditions change and as plants mature.

THE PROCESS

Understanding the process of planting and establishing a new rose is the key to a new way to think about water. The focus here will be on in-ground planting, but the same general concepts apply to container planting, but the stresses are magnified due to a limited soil volume and greater exposure to the elements.

SOILS

We can't really talk about watering without a bit on soils first. Where you plant and the condition of the soil ultimately determines what happens to the water you apply. We have clay soils in most of California, so digging a hole can often be a challenge and the temptation to replace the native soil with a nice potting mix can be great. **Don't do it.** The truth is, clay soils are good soils, they just need to be broken up with organic matter to create space for air, because roots need air just as much as water and nutrients. In sandy soils amend the native soil with compost and

mulch to add organic matter to help retain water. Dig a hole twice as wide and an inch or two deeper than the root mass or the root ball if the rose was potted, mix the soil from the hole 50/50 with compost and discard any clods that won't break up. You should take every opportunity to amend your soil, organic matter decomposes and needs replenishing during the year. This is your last chance to affect the texture of the soil around your new rose so don't skimp. As for totally replacing the soil when planting a potted rose ... don't! A transitional blend between the soil in the original pot and the native soil is crucial for proper drainage.

If you encounter hardpan ... that impenetrable layer of compacted clay just below the surface ... what should you do? Ideally, you'd plant in another location. If that's not possible, stop digging and consider planting on top of it and mounding the soil above grade. Create a raised bed. You want to avoid digging into hardpan unless you can get all the way through, or it will act like a tub without a drain hole, and the collected water will drown your poor rose.

PLANTING

Now that the hole is ready, it's time to prepare the plant. If your rose was potted, remove the pot by tipping it over so the rose slides out. Avoid pulling it out by the shank. Carefully loosen the roots so they are free to grow into the new soil. Position the plant so the top of the root ball is even with or slightly higher (~1/2") than the edge of the hole and fill in with your newly amended soil. Firm it around the root ball as you go with a gentle open hand (not a grinding heel). If your rose is bareroot, spread the roots evenly over a cone of soil making sure the dirt mark on the shank of the rose is slightly higher than the top of the hole. Firm the soil mixture over the roots gently. The idea is to maintain all the airspace we've created by adding organic matter while providing enough support to hold the plant upright. Water to settle the soil. Planting too deep is a common mistake with deadly consequences. The crown (the main stem at ground level) and the surface roots need air, bury them too deep and they'll choke. It's always best to err on the side of too high, if roots become exposed they can always be covered with a layer of mulch. This can also be a problem with established roses if the soil level around them is raised for any reason. You should always be able to see the flare of the shank (where the roots begin) at ground level. If you don't, pull soil and mulch away slightly until you can. Once you start watering the new rose, the soil will sink slightly.

Build a watering basin around your new rose by mounding leftover amended soil in a ring just outside the diameter of the plant. This way you can apply plenty of water to soak the

original root ball (where the roots are now) and the surrounding soil (where you want the roots to go). For the first few weeks you may need to water every day if it doesn't rain but as the roots grow out into the surrounding moistened soil you will be able to water less and less frequently.

WATERING TO ESTABLISH

The goal of good watering (deeply and infrequently) is to encourage roots to grow deeper and access a larger, more stable volume of water which isn't subject to the drying effects found near the surface. Deep soaking puts water down where you want the roots to grow and infrequent watering forces them to go searching. Shallow and/or frequent watering will create a shallow root system more subject to the elements. The feeder roots of roses usually infiltrate the soil to a depth of 12-14". After the first three months, a properly established rose should be able to go a week between waterings in a temperate climate, but always keep an eye on the rose. In climates where the summer temperatures get much past 90F the heat gets to be too much. If this happens, you may need to water every other day to keep the rose going. The smaller the plant, the smaller the root system but the concept is the same ... once established, the rose should only need to be watered weekly. Only new plantings and plants in pots are OK with daily water when needed.

GARDEN WATERING

Even an established rose garden which is used to frequent, shallow watering can be retrained and made more self-sufficient. Surface roots will remain but you can encourage new deeper roots by applying the same concepts discussed above.

To train the roses, water half as frequently but twice as long. Each month you can extend the time between waterings and water longer. Within a year your mature roses should be retrained.

HOW TO WATER

How you apply water has a lot to do with where it ends up. Very few soils can absorb an hours worth of water applied all at once, you may have to apply it more slowly or in smaller doses. So how do you deep water?

When watering by hand: for smaller roses, it's best to build a basin which extends just beyond the drip line and fill it 2 or 3 times. For larger roses apply a slow trickle of water for 20-30 minutes at several spots around the drip line of the plant.

When watering by sprinkler (in ground or manual): run your sprinkler to the point of run-off, turn off and allow the water to soak

in, repeat once or twice. Most sprinkler systems can and should be programmed to cycle through stations repeatedly. You can determine the output and efficiency of your sprinklers with the can-test. Space shallow cans in a straight line out from a sprinkler, run the sprinkler for 30 minutes, take note of the various amounts of water in each can and adjust your watering technique accordingly. It's always best to water in the morning so your roses are dry before nightfall when wet foliage will encourage a number of diseases.

When watering by drip system, run system long enough (usually an hour or two) to apply adequate water; most emitters are a gallon or two per hour. Water moves down and out through the soil wetting a cone of soil so initially emitters should be placed on top of the root ball ... if placed a few inches out to the side the water will miss the roots. Established plants are best with multiple emitters placed farther from the trunk so roots on both sides are watered. You can also use micro-sprinklers on a drip line to spread the water over the surface and wet the entire root zone. Check emitters regularly, they clog easily.

How often: determine watering frequency by periodically measuring how long it takes for a rose to start wilting after it's been watered thoroughly... this is the maximum time between waterings under those weather conditions.

The Time to Wilt Test is a good way to determine each rose's need.

FACTORS TO CONSIDER

Keeping in mind the general concepts discussed above, here are just some of the variables to consider:

How long established: Assuming good watering practices, the longer a rose is in the ground the less watering it will need. New plantings, on the other hand, can require water more than once a day - check on them frequently.

Soil conditions: The fine particles of clay soils accept water more slowly and hold onto it more tightly than sandy or loamy soils which drain more quickly. Water applied on a slope needs to be slowed in order to penetrate (basins, mulches, drip emitters, etc.).

Exposure: The amount of sun and when it's received affects how quickly a plant will dry as will reflected heat from walls and wind.

Weather: Cool and humid weather (fall & winter) minimize water usage while warm, dry and windy weather (spring & summer) are demanding. Spring and summer also signal higher water use because plants are actively growing and conditions are more extreme.

MOST COMMON PITFALLS

- ◆ Poorly amended soil
- ◆ Planting too deep
- ◆ Shallow watering (= shallow roots)
- ◆ Watering too frequently or letting plants dry out
 - ◆ Forgotten irrigation systems (clogs, adjusting for weather, etc.)

THE NEW WAY TO THINK ABOUT WATERING

Like a parent, take extra care in the beginning to nurture your roses, meet their needs (without spoiling them) and help establish them so they become as self-sufficient as possible.

Jolene Adams has served the American Rose Society in many different capacities for the past 20 years. Jolene has gained her volunteer experience as a leader in local rose societies, the Northern California-Nevada-Hawaii District of ARS, California Garden Clubs Inc., the World Federation of Rose Societies, and a Master Gardener supported by professional management skills to assist the ARS in so many ways. Throughout all of her career - whether at the University of California or within the hobby of roses, her personal emphasis has always been - and always will be - on communication.

Jolene has served on the ARS Bylaws and Horticulture Judges committees, as well as serving as the ARS Webmaster since the web site was launched. At the present time Jolene is the District Director for the Northern California-Nevada-Hawaii District in the American Rose Society, the 3rd largest District in ARS, with 28 local society affiliates.

JOLENE ADAMS is a candidate for Vice President of the American Rose Society.

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PHOTOSYNTHESIS

Carbon Dioxide + Water + Sunlight = Sugars + Oxygen

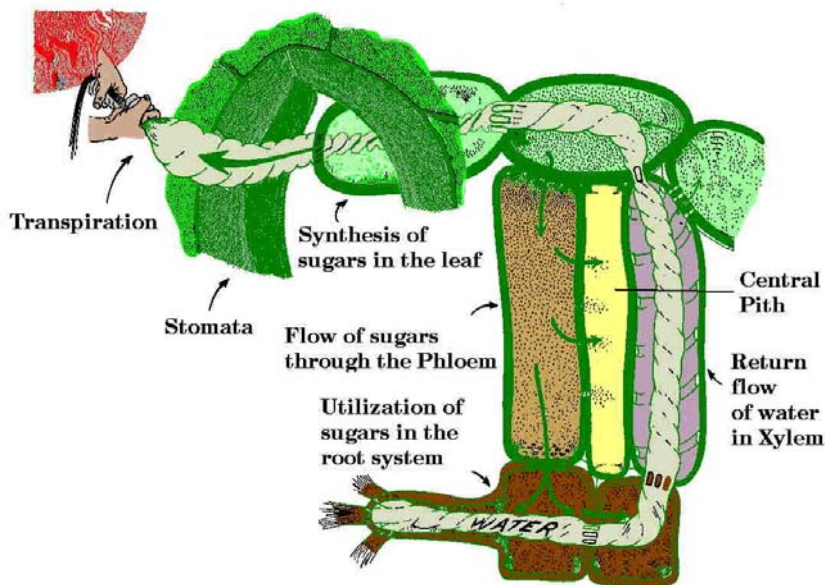


The intake of carbon dioxide from the atmosphere through the stomata in the leaves to combine with water from the root system carried up the xylem to manufacture sugars and oxygen using the energy of the sun.

RESPIRATION

The release from the leaves through the stomata the manufactured oxygen resulting from photosynthesis. The sugars are either used as building blocks for stems and flowers or returned to the root system via the phloem.

The Importance of Water



Schematic diagram illustrating the flow of water (plus nutrients) from the root system carried up the canes and stems via the Xylem up to the foliage where photosynthesis takes place producing sugars for distribution to the plant with excess sent to the central pith via the Phloem. The hot sun, however, causes transpiration or moisture loss via the pores or stomata on the foliage. When transpiration exceeds water intake at the roots, wilting takes place causing the biochemical systems to shut down. Providing an excess of water will revive the plant but it takes almost a day or so for the plant to recover its manufacturing potential.