

## **Retaining Water with Soil Amendments and Mulch**

There are many ways of protecting plants while saving water. The most important is creating and maintaining healthy soil! Healthy soil and soil improvements are a very important part of water-wise landscaping. Soil is not only an anchor for your plant roots, but it also serves as a reservoir for water and nutrients.

Soils in the Pacific Northwest are primarily clay or sandy loam, Clay absorbs water so slowly that the water will run off the surface if applied too quickly. Sandy soils have such large air spaces that they do not hold water or nutrients well. Soil amendments help improve absorption and water-holding capabilities.

**The most frequent physical soil problem is poor drainage-** where water moves very slowly into the soil. Corrections or careful management is necessary if you want to grow a broad variety of plants. Here are few causes of poor drainage.

- 1) In most housing developments, the topsoil is typically scraped off to dig foundations or to level the site. This exposes hardpan – a tight, impervious layer of soil, also called caliche. If topsoil is spread back over the site with the use of heavy equipment the site can turn topsoil into seriously compacted soil, leaving it difficult to dig, to drain properly, and virtually impossible for plant roots to penetrate.
- 2) Deep clay soils. Drainage is usually slow in deep clay soils resulting in runoff or puddling if water is applied to quickly.

### **Retaining water:**

Water absorption and retention are influenced by the composition of your soil. You can improve the soil structure, fertility and water holding capacity of almost any soil, even the best soils can benefit from the application of an organic amendments. The most important are creating and maintaining a humus-rich soil, and practicing constant mulching.

In clay soil the decaying matter wedges between soil particles and groups of particles, opening up the earth so that water, air and roots can penetrate more easily. Runoff and puddling – two common problems in clay soil – are reduced when organic matter is added.

In sandy soils, organic matter lodges in the relatively large space between particles, slowing the percolation of water through the soil so that moisture and dissolved nutrients are retained longer.

Eventually, organic matter will be completely reduced by soil micro-organisms, and new material should be added. With frequently renewed beds such as for vegetables and annuals, add organic amendments each time you prepare the soil. In permanent plantings, an organic mulch will provide material for continued decomposition so the topsoil will remain permeable.

Organic materials include shredded bark or aged sawdust, peat moss, animal manures, and commercially prepared composts are sold in nurseries and garden centers. Check with your state college, cooperative extension office, or a soil-testing lab to determine the best soil improvements for your site and chosen plants.

Humus, leaf and or compost should be regularly worked into your soil. This will increase the soil's water retention capabilities enormously, improve its structure and drainage to ensure strong, healthy plants. Humus and compost can retain up to eight or ninety percent water more water than soil with out these components.

### **Mulches**

Good mulching over wet soil is the secret of maintaining a garden with little or no water. You can use both organic and inorganic material. You will be amazed at how long 4-5-inch-deep layer of mulch can keep the soil moist even in very hot dry conditions. Compost and mulch hold water like a sponge, slowly releasing moisture when your plants need it. In this environment, plants grow deep roots, reducing how much and how often you need to water and fertilize.

The concept is that if a blanket of organic, inorganic, or man-made material is placed to varying depths over the soil and around the roots of the plants, it will keep the heat of the sun from causing evaporation and it will help control weeds. Mulches also control erosion of the soil around the base of the plants and, if organic, can improve the quality of the soil as well. They help soil from compacting, allowing moisture to move easily to the plant roots

Compost, animal manure, leaf mould and composted shredding can all be used as surface mulches, as well as to enrich your soil. You can also use other organic materials, lawn mower clippings make a wonderful moisture-retaining mulch for fruit, vegetable, and other plants. Lawn clippings can also be mixed into your compost heap or they can be left on the lawn itself as a mulch. Bark, wood chips and cocoa shells are more permanent organic mulches that are good for perennials, trees, and shrubs.