



# DIY FOR 2010



## Water Conservation in the Garden: Soaker Hose and Drip Irrigation

Gardens and lawns typically can account for over half of total household water use in Colorado. Conventional water systems, such as sprinklers and hand-held hoses, are inefficient due to significant amounts of water being lost to runoff and evaporation through wind. Irrigation systems that apply water directly to the soil in a slow and steady flow are a much more efficient option in our dry climate. Additional benefits include reduced weeds, since water is applied in specific locations, and better growth, because plants respond positively to slow, steady application of water, rather than occasional drenching. Two easy-to-install, low-pressure alternatives appropriate for home gardens are soaker hose and drip irrigation.

**Soaker Hose:** A Soaker hose costs between \$15 and \$40 to install and is an easy do-it-yourself project, appropriate for relatively flat, small gardens. One advantage to a soaker hose is that it is easily moveable, so if you decide to change the layout of your garden, you can simply pick up the hose and move it accordingly.

**Drip Irrigation:** Larger projects (longer than 100ft of hose) or ones with more considerable slope may be well suited for drip irrigation. Drip is a more permanent solution, as it involves more components and longer set up time. However, drip tape is easy to install yourself and can be modified or replaced at any time.

For either system, installing an automatic timer at the spigot is an excellent way to ensure wise water usage and regular watering for your plants. Drip systems operate at relatively low pressure; thus, they will not drain water from other uses in the house. Know your water supply (e.g. 100 gallons per hour) compared to your plan. Obviously, you cannot exceed your water supply, nor do you want the pressure coming from the house to overwhelm your lines.



### **Installing a Soaker Hose:**

Soaker hoses are ideal for lengths of 100 feet or less and are often sold in 50ft lengths. They can be attached directly to the spigot on your house. The hose itself is permeable and will slowly and evenly release drips of water while it is on.

1. Plan where in your garden you would like to irrigate. Measure out the length of hose you will need.
2. Attach the soaker hose to the spigot. Lie out the soaker hose where you intend to place it, making sure to leave about 12" between parallel lines of hose.
3. Move the hose slightly to the side and dig a 2" trench for the hose.
4. Place the hose in the trench and lightly bury it, without compacting the soil.
5. Turn it on. After about 30 minutes, check to make sure that the soil above and around the soaker hose is damp along the entire length.

6. Water daily in the morning or evening. Keep the soaker hose turned on long enough for the water to fully percolate the soil, and shut it off before it looks over-drenched. If your plants are well-hydrated, switch to every other day. Monitor and adjust as necessary.



## Installing Drip Irrigation

1. Measure the plot and each row that you plan to irrigate to determine how much tubing you will need. Tubing comes in large rolls that can be cut to fit. The total distance of *submain* (the hose coming from your spigot) should not exceed 400ft. Note how many *elbows* you will need to turn corners, and how many *tees* you will need for attaching multiple lines.
2. To deliver the water from the submain to the soil, you can choose either *emitters* or *drip tape*, or a combination of both. *Drip tape* is similar to soaker hose, but rather than being a permeable hose, is simply plastic tubing with holes spaced about 1 foot apart. *Emitters* are small plastic devices that you can attach to the submain by poking a hole in it.
3. Decide where you want to put emitters and/or drip tape. Emitters will need to be spaced between 10-12" apart, depending on your soil. Count how many emitters and measure how much drip tape you will need.



4. To install your system, start by attaching your *anti-siphon*, *filter* and *pressure-reducer* to the spigot. If you are using an automatic timer, install it above the filter.
5. After attaching the submain to the filter, lay it out on the ground according to your design. Wherever the system changes direction, cut the tubing and install an elbow. Wherever the submain splits, cut the tube and install a tee. **Note:** if you are using drip tape, you may be able to avoid splitting the submain by simply running multiple lines of tape.
6. Lie out and install any drip tape you are using, with the holes

pointed down toward the soil.

7. Fold over the ends of the submain and drip tape and insert into endcaps (for drip tape) or a hose clamp (for submain) to seal the ends of each line.
8. If you are using emitters, install one by poking a hole in the submain and inserting the emitter. Let the water run for one hour, then measure the diameter of soil that has been permeated. Measure the spacing between emitters on the rest of the submain accordingly.
9. Stretch out your drip tape so it is straight and flat and then cover it with piles of dirt spaced about every 10 feet to hold it in place.
10. Test your whole system to verify even watering. Start by watering for one hour every other day. If your plants are well-hydrated, try decreasing that to every three days. Monitor and adjust as necessary.

