

WATERING GARDEN PLANTS Science Page

TO WATER OR NOT TO WATER?

In most areas, rain alone does not meet all the water needs of garden plants. You need to water the garden.

The soil is dry all the way down to the depth of the plant roots. It's time to water.



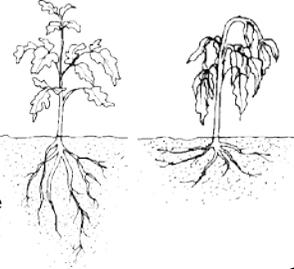
The soil in raised beds dries out faster, so we have to water more often.



At least these beds drain well. If the soil were compacted, the water would not drain and the plant roots would drown.



You need to add enough water so that it seeps all the way down to the plant roots. If you just water the soil surface, the roots will grow close to the surface and then the plants will wilt more quickly.



WATERING METHODS

1. A watering can and hose are useful for small gardens.



Direct the water to the base of the plant, not on the leaves.

I'm using a gentle rain nozzle so the water can slowly soak into the soil.

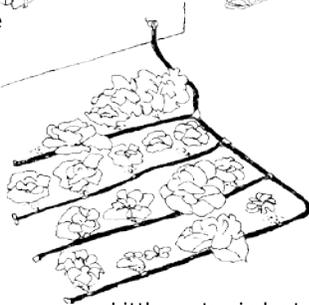


2. Sprinklers are cheap and convenient, but they waste a lot of water to evaporation, especially on hot, windy days.



I'll move the sprin around to other s so all the garden g enough water.

3. A drip or trickle irrigation system applies water directly to the area in the soil where roots are growing.



Many farmers in hd, dry places use drip or trickle irrigation.

Little water is lost to evaporation or run-off when you use the drip or soaker hose methods because the water goes into the ground near the plant.

4. A soaker hose is a plastic or canvas hose with holes all along its length. It is placed along one side of plants or underneath mulch. Water seeps out slowly.

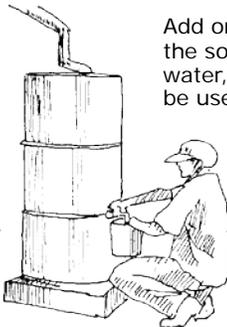


The gentle stream of water causes little or no compaction of the soil.

SAVING WATER IN THE GARDEN

Make the most of available water in the garden.

Collect rain water from roof-tops in rain barrels. Keep the rain barrel covered to prevent mosquitoes from breeding.



Add organic matter to the soil. It holds the water, which then can be used by plants.



Water during early morning. At this time temperatures are cooler and it is less windy, so there is less evaporation.

Cover the soil with mulch, which smothers weeds and allows water to seep slowly into the soil. A mulch cover also reduces evaporation of water from the soil.





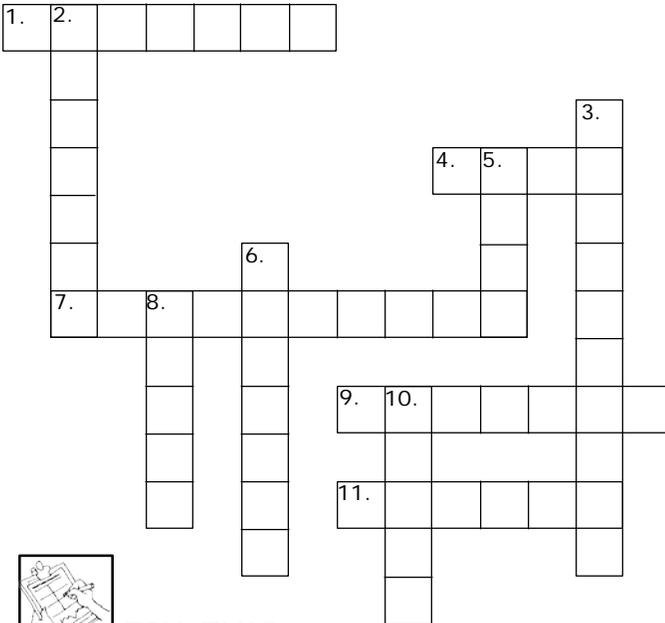
CROSSWORD PUZZLE

Across

- Water in the _____ when it is cooler.
- This type of irrigation system applies water directly to the roots of plants.
- Watering with a gentle stream of water causes little _____.
- Farmers in hot, dry countries use this method of watering.
- A hose with holes all along its length is called a _____ hose.

Down

- Add _____ matter to soil so that the soil will hold more water.
- They waste a lot of water to evaporation.
- Use a gentle _____ nozzle for watering plants.
- Gardeners can collect rain in rain _____.
- _____ will help reduce evaporation from the soil surface.
- When watering add enough water so it seeps all the way down to the _____.



TRY THIS

DRIP IRRIGATION FOR GARDEN PLANTS

What you need

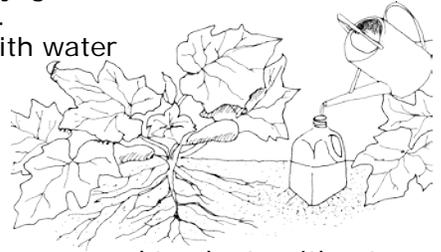
- * plastic one-gallon milk jugs
- * clothespin with spring
- * pin
- * candle
- * matches

What to do

- Light the candle. Use the clothespin to hold the pin. Place the sharp end of the pin in the candle flame until it is hot. Use the hot pin to melt about 8 to 10 small holes in the bottom of the milk jug. CAUTION: Do this only under the supervision of an adult.
- Put some water in the jug to make sure the

water will slowly drip out of it.

- Bury the milk jug between widely spaced plants in the garden, such as tomatoes, peppers, eggplants, or squash. The bottom 15 cm of the jug should be buried (see picture).
- Fill the jug with water every few days during dry spells.
- Observe how well the plants near the jug grow, compared to plants without drip irrigation.



SPOTLIGHT ON RESEARCH

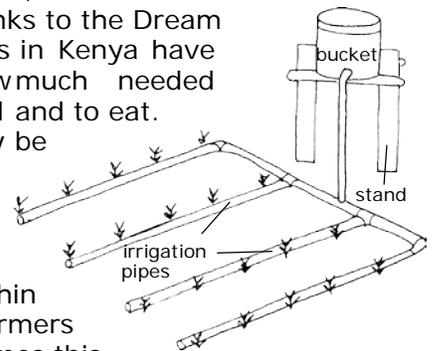
Dream up a watering invention

Can you think of a creative irrigation idea for gardeners and small farmers? Each year the World Bank and the United Nations sponsor a contest to promote irrigation systems for small farmers and gardeners. The irrigation systems must be affordable, creative, easy to operate, and useful in many areas around the world.

One of the contest winners was a "Dream Kit" for drip irrigation, designed by Stephen Ngigi at the University of Nairobi in Kenya. The Dream Kit consists of a bucket mounted on a wooden stand above the ground. The bucket is connected to pipes with tiny holes in them, through which water drips out along a row of crops. In dry areas, the bucket is filled twice a day. Thanks to the Dream Kit, small farmers in Kenya have been able to grow much needed vegetables to sell and to eat.

The kit can easily be put together and repaired by farmers, and costs only U.S. \$15.00. Within three months, farmers can make four times this much by selling crops that would otherwise be difficult to grow. The Dream Kit truly deserves its name!

Source: Keller, J. (2002). Contest for Innovative Irrigation Ideas and Technologies for Smallholders. World Bank, Washington D.C. <Inweb18.worldbank.org/.../FILEtopentrantsI&Dcontest.pdf>



RIDDLE

Where do vegetables go to have a drink?

Answer: A salad bar!