

## Using Mulch and Drip Irrigation to Conserve Water

We all know that water is scarce; a precious resource that needs to be protected and conserved as much as possible. Water is needed to produce our food and there are several ways we can be more water thrifty in growing vegetables. Once young seedlings emerge, we can apply mulch, such as good quality hay, to protect the root zone from drying out and prevent weeds from becoming established. Mulch will keep the root zone three to four degrees warmer in the winter and three to four degrees cooler in the summer. During temperature extremes, mulch can be an important tool in saving your crop.

Water is a primary yield-determining factor in crop production. Water stress is a major problem that will result in loss of harvest weight. Applying the correct amount of water, at precisely the right time, will make a big difference on yield.

How much water is enough? The amount of water needed by a plant is the amount of water loss from the plant, due to transpiration, plus the amount of water loss from the soil due to evaporation. Transpiration is the process by which water evaporates from leaf surfaces and creates an upward movement of water through the plant, replacing the water vaporized and released into the air from leaves. This water loss can be measured by a switching tensiometer that can be connected to an automatic irrigation system.

The tensiometer senses soil drying and will trigger the on-off switch of an automatic drip system. You can also use one or two tensiometers in the planting beds to monitor for accuracy of the switching tensiometer that is hooked up to the irrigation system. This double check allows you to monitor for accuracy and catch a problem before you lose your crop.

Drip irrigation will also allow you to control the amount of fertilizer delivered through the drip irrigation system to the plant. Be sure to check irrigation filters and keep them clean. Emitters will clog, from time to time, and need to be monitored as part of your regular maintenance schedule.

Having an automatic system does not replace the importance of monitoring your crop. The key to successful drip irrigation is putting small amounts of water, about 1 to 1.5 gallons of water per hour, to the exact spot where soil roots are mining for moisture. Make sure that the soil bed, where the drip lines are placed, is level. With drip irrigation, level rows are important to assure proper delivery of service.

Irrigation systems can be purchased through licensed irrigation suppliers. For small home systems, the major retail hardware stores carry most of the supplies you will need. Several articles on drip irrigation systems can be found at our web site at: <http://aggie-horticulture.tamu.edu>. Just type in "drip irrigation."

For those who enjoy our farmer's market, we will be in McAllen today, with a great variety of fresh, locally produced vegetables on the corner of Main and Lindburg, just two blocks north of the Expressway 83 service road.

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