Landscape Irrigation Equipment
Part 4: Drip Tape

There is another drip product used almost exclusively in commercial vegetable production called “drip tape” or line source drip tubing. This is an extremely thin, extruded drip tubing (typical wall thicknesses are 8 to 10 thousandths of an inch or 8 to 10 “mil”). Emitter outlets are typically installed on an 8 to 12 inch spacing, but longer spacing’s are available.

Figure 1. Drip tape with a small slit for water to exit. A labyrinth-like channel regulates the flow to the outlet. 
(Photo credit: Bryan Smith)

Drip tape was developed for use in a commercial vegetable bed for a single year on perhaps one or two crops. After the growing season is over the drip tape is removed and recycled or disposed of. The following year new drip tape is installed in the new vegetable beds.

Commercial vegetable producers are able to replace this product each year due to the high value of their crop and the relatively low cost of the drip tape. An irrigation system failure for a commercial grower could mean a loss of millions of dollars in some cases. New drip tape each year helps prevent problems due to insect intrusion or physical damage over the winter. Drip tape is quite inexpensive due to the thin wall of the product – usually less than 3 cents per foot in a full roll quantity of 7,500 feet.

Drip tape is suitable for use in a home vegetable garden, but since it should be replaced each year there is no other practical application for it in the landscape. There is some work being done that buries a heavy-wall version of this product in the landscape to irrigate lawn areas (called subsurface drip irrigation or SDI), but this application has not yet seen wide acceptance in South Carolina due to our variable soil types and other factors. SDI is currently used in some row crop applications quite successfully – perhaps we will see more work with SDI on lawn applications in the future.

Filtration & Pressure Regulation
All drip irrigation systems require some type of filtration and pressure regulation. Drip tape systems operate quite well with a water pressure of 10 psi, but water pressures higher than 15 psi can cause ruptures in the tape. Pressure regulators maintain
the optimum pressure for the system, regardless of fluctuations in the irrigation system pressure.

Filters are also required for drip systems due to the tiny openings in the drip tape. More information on pressure regulators and filters is provided in brochure HGIC 1814, Landscape Irrigation Equipment Part 5: Filters & Pressure Regulators.

Problems for Drip Systems
There are two special problems that may cause difficulty for a drip tape system regardless of the filtration system used. The first is pond or surface water. Surface water naturally contains a large amount of sediment and organic matter. The high load of sediment can plug a normally-sized screen filter in a short time. Usually some type of self-cleaning screen filter or a sand media filter (similar to a pool filter) is used to prevent frequent plugging.

Surface water will also contain algae that may grow on the filter screen, causing frequent plugging problems. Usually a small but continuous injection of chlorine into the irrigation water will prevent algae problems. Chemical injection of any type requires certain safeguards to be installed in the irrigation system to prevent backflow into the water body. For a small drip system in a landscape it may be less expensive (and much more convenient) to use well or municipal water for the drip system and surface water for the sprinkler system.

The second potential problem for a drip tape system is iron in well water. The iron will remain in a liquid form and flow through the filter regardless of the filter mesh size. When the iron leaves the drip tape and contacts the air, it will oxidize into iron oxide, which is a solid. In a normal sprinkler system with large nozzle openings this is not a problem, but iron oxide deposits will plug drip tape in a very short time.

If the homeowner suspects that iron is present in the well water to be used with a drip system, the first course of action is to have the water tested for iron. If the iron content is less than 0.1 parts per million there will not be a plugging problem. If the iron content is 0.3 parts per million or more there will definitely be a plugging problem. Test the water before installing a drip system if there are reddish-brown stains in the sink or tub.

Summary
Drip tape is an annually-replaced product designed for use in commercial vegetable systems. It can be used in home vegetable gardens, but is not suited for use in the landscape.

Adapted from the 2007 South Carolina Master Gardener Training Manual.

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