Drip Irrigation: Is It for You? (Part 3)
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This is the last in a series of three articles about drip irrigation. The first two articles of the series included an overview of drip irrigation, various types of drip irrigation and various components which make up a drip system. In this last article we will discuss system design, construction, useful hints, and maintenance and weatherizing tips for the system.

Last, is some maintenance and winterizing tips for the system.

As the saying goes, "The best place to start is at the beginning". This is especially true when it come to designing, laying out, and setting up a drip irrigation system. Since these systems are "permanent systems", good design of the system from the beginning will result in a savings of money, trouble-free operation, and an efficient watering system for your plants.

Start by making a sketch of the areas you want to water. Include the dimensions of the area to be watered. Make sure to include the water source or location.

Identify plant location and size, since plant water needs vary according to type and size. On the drawing, note the topography. All of this information will bring an understanding about the system, identify the type of emitters needed, and forestall future problems. The drawing will provide a worksheet from which you can determine the lengths of runs, layout, and amount of mainline and laterals.

When designing your drip system, plan for future expansion and growth. As plants grow they will require more water. While watering times can be lengthened, generally more emitters are added. ½" polyethylene (poly) line is used for the runs/laterals in drip irrigation. The optimum operating pressure for drip irrigation is 25 PSI. A pressure regulator is used when a system changes from the city or well water supply to drip irrigation. One important figure to remember: the capacity of a ½" line at drip irrigation pressures is approximately 220 gallons per hour (GPH).

To determine the amount of water a drip system will use, add the total number of emitters and their flow rates. As an example: around a home or garden, an area/zone being watered could consist of 15 - 1GPH emitters, 10 - 2GPH emitters, and 10 - 12GPH emitters for a total of 150 GPH. If the total amount of water usage exceeds 220 GPH from this ½" line it would be necessary to divide the area into additional zones.

On larger commercial systems the size of the supply line, determines the size of a zone. Knowing the line size and a simple formula allows you to determine a rough estimate of available water. Use the inside diameter (ID) measurement of a pipe. (Diameter squared x 20 x 60= GPH, at normal pressure.) As an example: ¾" pipe, (.75 x .75) x 20 x 60 = 675 GPH of available water.

Manifolds control multiple watering or irrigation zones. Using manual or automatic valve allows for water control of the manifold zones. Automatic timer-controlled solenoid valves and manifolds are preferred by many since they allow precision of watering when away from home or farm.

Keep in mind there is no one way to design and install a system. Since each home and farm is different, each system is unique and different. Mark on your drawing filters, manifold(s), supply lines, and laterals. Calculate the water usage and size of your zones. Place the zones on the drawing, and look at the layout. Is it the most efficient use of materials? Does it get water to the zone? Does it make sense?
From your water source, install your filter, fertilizer injector, mainline, valves, laterals and supplies lines. Place the feeder tubes or emitters into the ½" poly supply line and you are nearly ready to turn on the water! First, make sure to flush the system before closing off the ends. Dirt and construction debris can clog the nozzles. Run the water for a couple of minutes, then close off the ends.

Maintenance on a drip system is not difficult. Inspect the emitters occasionally to ensure none are plugged. Filter screens occasionally need to flushed and cleaned. Frequency depends on water quality. Occasionally flush your lines to prevent sediment build up.

If you are in a freezing area, it is necessary to "winterize" the system. One method is to remove the end plugs lowest in elevation and let the water drain out. Remove water from the components, such as, filter, manifold, and valves. Another method is using an air compressor to blow the water from the system. Care must be taken not to use too much air pressure or you jeopardize the integrity of the system and cause leaks.

Drip irrigation parts are available from a variety of sources: the neighborhood hardware store, home improvement center, or irrigation supply center. Also there are some excellent on-line drip irrigation stores. Some stores offer products in bulk at discount prices. Research your needs and match them to your supplier. Ask them questions. Make sure they offer high quality-standardized parts, a full range of components, and know drip irrigation!

Drip irrigation is here to stay. It is the answer for many watering and fertilizing needs of home, nursery, and farm. It is a cost effective, reliable, and time tested means of applying water to a variety of crops and plants in a variety of situations. It helps make a wise use of one of our most precious natural resources: water.

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