Drip Irrigation

Spring has been busy here in the Extension Office and have been getting distracted and have not been getting articles to the paper like I need to be. I am back in the groove of things and will hopefully have articles running on a much more regular basis. I needed to get this in to make sure everyone knows I have not gone anywhere and am still here is Dolores county.

As we all know things are very dry this year and watering the gardens and landscaping will be necessary and much more expensive due to the looming lack of secondar water pushing us to utilize our domestic sources to keep things growing. Because of the added expense of using domestic water for gardens and landscaping water efficiency will be key. This may be the year to invest in an irrigation system as it may be able to pay for itself this year.

There are many ways to water but drip irrigation is in my opinion can’t be beat for vegetable garden or landscape planting. Drip irrigation can be up to 90% efficient where traditional sprinklers are anywhere from 50% to 70%. The idea is that the water is delivered directly to the plant’s roots with very limited opportunity for runoff and evaporation. There are many types of systems and most of them are simple and affordable. All drip systems have many of the same components. These include a filter, pressure reducer, main supply line, water emitters and a backflow preventer if the system is hooked to a potable water source. There are many different filters out there. Some are better than others in certain situations. If the water source is clean such as a domestic source a larger mesh such as 200 micron could be used. If the source is unfiltered such as M & I water from DWCD a smaller mesh will have to be used and the filter will have to be cleaned more often to keep debris out of the system and prevent clogged emitters. Depending on the type o system pressures are usually between 10 to 20 psi. Before purchasing the pressure reducer make sure to have the system planned out and get the correct pressure reducer for the system. For example, micro sprinklers will require more pressure than will drip tape or drip emitters.

The type of system will be determined by what it is watering. Drip tape or “T tape” is very common for vegetable gardens where the plants are in straight rows. This system has a main supply line with zones coming off of it. Each zone has a valve and main line with a rip tape coming off it to service the plants in each row. For landscapes the sky is the limit. Most systems have main supply line with ¼ inch tubing running to each plat with a drip emitter on the end. Some systems just have the main line snake around to each plant and have the emitters directly in the line. The great thing about these systems is they are each customized to the space they service and can be scaled up or down very easily. The limiting factor for a system is the flow volume the water to the source can provide.

To determine your max flow from a given source, run water full force from the source and note number of seconds it takes to fill a bucket. Calculate the gallons of flow per hour (gph) by dividing the bucket size in galls by the number of seconds required to fill it, them multiply by 3600 seconds for gallons per hour. The maximum flow is considered to be 75% of the flow rate. This is the largest number gallons available to use at one time while operating a zone. Once you have this information the system can be designed. You can have as many zones as you want as long as each zone does not exceed the max flow.

The size of the main supply line will be determined by the size of the system. Limit mainlines to 200 ft in a single zone. Use ½ inch polyethylene mainline on small to medium properties where maximum flow per zone will not exceed 200 gph (figure is conservative and may be 250 feet or higher because different manufacturers produce pipe with varying inside diameters). On medium to large properties, choose ¾ inch tubing to increase maximum available flow rate to 480 gph per zone. If the source flow is less than mainline capacity, the source gallons determine the number of emitters per zone.

Emitters come in many shapes an sizes. They come in many different flow rates and are labeled for galls per hour. If I have been determined that a max flow rate is 250 gph then there can be no more than 125 2 gph emitters in a zone. There can be as many zones as needed but only zone can run at a time. There are also pressure compensating emitters on the market. These will keep a constant flow rate over a range of pressures where the others will not. When choosing emitters take into account your max flow and the water needs of the plants.

This article barely scratches the surface of drip irrigation. There are very few situations where drip is not feasible. If you interested in a drip system, give me a call I will be happy to assist you. It is a fun project that will reduce your workload and water bill through the growing season for years to come.

*Information provided by CSUCE and Dolores County.*

For further information concerning these topics or any other subject, stop in or call Gus, Oma and Joey at the Colorado State University Dolores County Extension Office, 677-2283. Cooperative Extension programs are available to all without discrimination.