Drip Irrigation Basics

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Drip Irrigation Advantages
(Why use drip?)

• Water delivered to where you need it without a lot of waste.
• Slow delivery of water so a benefit with all soil types.
• Reduced weed growth due to less water where you don’t want it.
• Can water at any time of day or night when spray restrictions may be in effect.
• No blockage of spray due to larger plant material.
• In most cases, easy to assemble and repair with no glued parts.
• Used in all types of plant combinations or specialty situations (i.e. Vegetable gardens, raised beds, etc).
Flow Rates, Drip vs. Spray

• It all depends on pipe size (flow) (see chart) and nozzles used.

• Spray head application rate varies:
  • 5000 series rotor at normal pressure can apply 3-5 gpm (1 head)
  • Fixed pop up can range from .25 to 3 gpm depending on the nozzle used.

• Drip on the other hand is in gallons per hour. Each emitter ranging from .5 to 10+ gallons per hour.

• A typical system using 1 gph emitters could run approx. 1,400 emitters and have enough flow through a ¾ inch pipe.
Determining Flow Rate for Drip Zones

Bucket method to determine flow from the source

• [https://youtu.be/xrCAc2mz3yo](https://youtu.be/xrCAc2mz3yo)
Drip Zone Set Up - Manifolds and Valves
Sprinkler Valves

- **Standard Valve**
- **Valve w/ pressure regulator/filter**
Filtration - a necessity with secondary water

For Drip a mesh/screen size of 150 is probably adequate. The higher the number the finer/higher the filtration.
pressure regulator/reducer
Hose end connections work also

You can even purchase battery operated valves for hose end applications.
The quick set up of a drip zone manifold

- https://www.youtube.com/watch?v=yG56_Tbyi5o
Pipe types and terms

- PVC (schedule 40)
- Poly
  - ½ inch or ¾ inch.
  - Used for main lines or lateral lines.
  - Thickness varies depending on use (drip applications have thinner walled pipe)
- Lateral Line - line from valve assembly to delivery (heads or emitters)
- Main Line - supplies water to valve assembly (always pressurized)
Drip irrigation overview

• Drip irrigation allows water to flow slowly to the root systems of the plants.
• Very little water is wasted because of evaporation or wind.
• Helps with weed control.
• Easier to install or change.
Drip irrigation types

- In-Line Drip
- Point Source Drip
In-line drip

In-line drip is best for high density plantings.
In-line emitter poly around shrub
In-line drip emitters

- Drip emitters built directly into the lines
- This is meant to water the entire planter bed evenly
- Installed on the surface of the soil under a layer of mulch
- Maintenance of this style of drip line is easy
• Drip emitters are attached to the main line with distribution tubing
• Emitter is meant to water individual plants
• Installed on the surface of the soil under a layer of mulch
• This is the best approach for maximum weed control
Point-source drip works well for low-density but can be used on higher density plantings as well.
Drip irrigation retrofit kits

New technologies make switching from overhead spray to drip much easier.
Spray to Drip Conversion
Drip Tape/ Trickle Tape/ T Tape
Drip tape used here in row crop applications, and dense plantings in raised beds.
Drip Tape Continued

- It operates at 8-15 PSI at the head-lines to give 10 PSI in the drip lines. (other drip may run at 35 PSI)
- Drip tubing can last anywhere from 1-5 years depending on the quality (8 mil- 15 mil) and the application and if left in the sun, etc.
- Drip Tape can be buried, covered with mulch or left at the surface level.
- Pressure compensating along the length, works very well.
Resources:

- https://www.dripworks.com
- https://www.dripdepot.com
- https://www.rainbird.com/homeowners/drip-irrigation-basics
- https://www.orbitonline.com/products/drip-irrigation
- https://cwel.usu.edu/irrigation-extension