Minimal System Requirements for SDI

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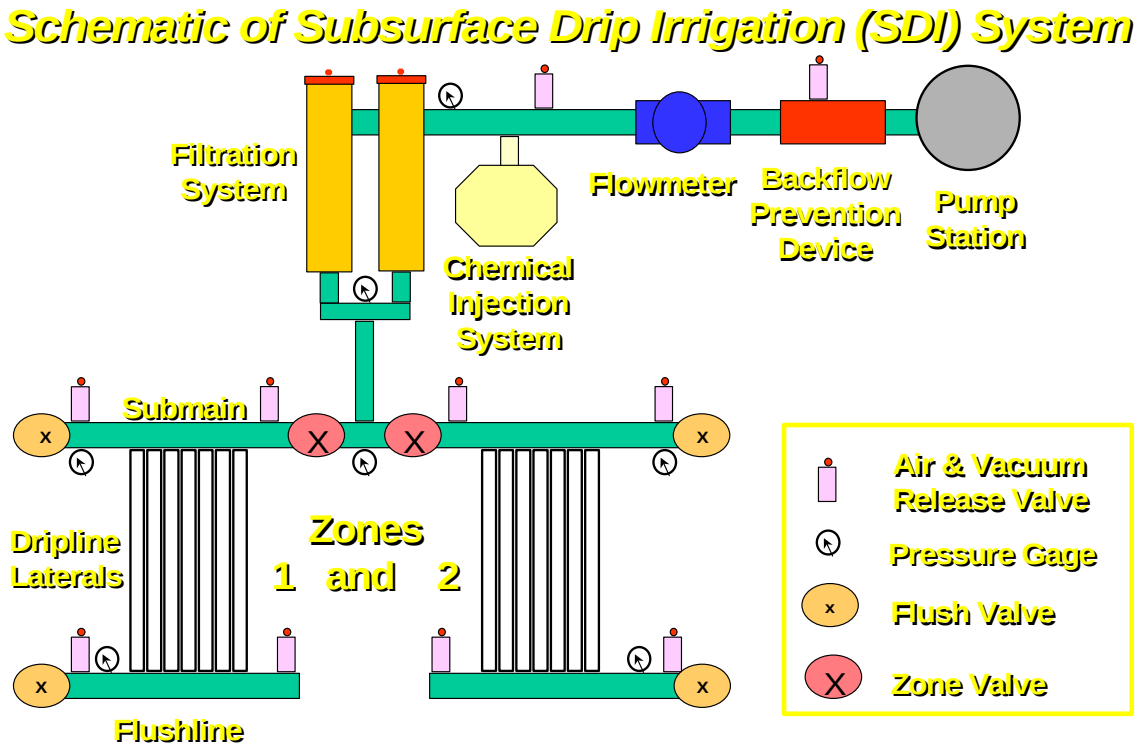
SDI systems are expensive costing from approximately $600/acre upward to over $1000/acre depending upon features.

An enduser is often tempted to choose a cheaper design. However, this may be a poor economic decision if the system is difficult to monitor, manage, and maintain.

The schematic shows the necessary elements of a properly designed SDI system. Component selection and sizing are important issues in design, but will not be covered here.



Filtration system

All SDI systems must have a filtration system matched to the dripline specifications and suitable for the water source.

Chemical Injection System

Chemicals to maintain the SDI system and nutrients to feed the crop are often injected into the SDI system.

The required number of injection systems and their injection point locations depends on the clogging hazard and/or the nutrients being injected.

Backflow Prevention

The water source must be protected from accidental contamination by the injected chemicals by using an approved backflow prevention device.

Air & Vacuum Release Valves

Provisions must be made to release air and break vacuum at all the high points in the system. Vacuum release is critical to prevent soil from being ingested into the dripline at shutdown.

Flushlines

The flushlines at the tail end of the system serve 3 particular purposes:

- Allow debris and contaminants to be flushed from dripline laterals at a centralized location.
- Equalization of pressure in the dripline laterals.
- Allow positive pressure to exist on both sides of a dripline break to prevent filling the dripline with soil.

Flowmeter and Pressure Gages

These items are the irrigator's *"eyes and ears"* to monitor and manage a system that is mostly invisible.

Periodic (daily, weekly and monthly) flowmeter measurements, in conjunction with pressure gage readings, can indicate if the system is performing properly with no leaks or plugging. The flowmeter is also a critical tool in determining if sufficient irrigation is being supplied to the crop.

Concluding Statement

Efforts are justified to minimize investment costs whenever possible and practical. Minimizing investment costs through cheaper designs can be a double-edged sword, as a cheaper system may increase operating costs and/or possibly increase the chance of system failure.

For more detailed information, please pick up a copy of *"Design and Management Considerations for SDI" and "Filtration and Maintenance Considerations for SDI"*
or visit the SDI website at http://www.ksre.ksu.edu/sdi/ and look under K-State Reports