

## USING A FLOW METER TO DETERMINE THE IRRIGATION SYSTEM APPLICATION RATE

Understanding your systems water application rate allows you to compare your estimated application to actual applied water, a key component of irrigation scheduling.

A flow meter readout usually has a totalizing register recording the total flow (gallons, cubic feet, ac – in, etc.) passing through the meter. Many meters also have an instantaneous flow rate indicator (gpm, cfs, etc.) on the readout. The most reliable flow rate value comes from noting the change in the totalized flow across a known time interval rather than using the instantaneous readings. For example, if a flow meter measured 30,000 gallons passing through it in one hour, the flow rate would be 500 gpm.

Frequently, it is very useful to determine the application rate (in/hr) from the flow meter information.

### Formulas for Calculating Irrigation System Application Rate

$$\text{___ gpm} \div \text{area irrigated (acres)} \times 0.0022 = \text{___ in/hr}$$

$$\text{___ cfs} \div \text{area irrigated (acres)} \times 0.992 = \text{___ in/hr}$$

$$\text{___ gallons} \div \text{time period over which measured (min)} \div \text{acres irrigated} \times 0.0022 = \text{___ in/hr}$$

$$\text{___ cubic feet} \div \text{time period over which measured (min)} \div \text{acres irrigated} \times 0.0165 = \text{___ in/hr}$$

$$\text{___ ac – ft} \div \text{time period over which measured (min)} \div \text{acres irrigated} \times 720 = \text{___ in/hr}$$

### Flow Meter with Instantaneous Rate Readout

This handy formula is used to determine the inches of water applied during an irrigation:

$$\text{Inches Applied} = \frac{\text{Flow Rate (gpm)} \times \text{Irrigation Time (hrs)}}{449 \times \text{Acres Irrigated}}$$



