

# Strategies for Efficient Irrigation Water Use

*C.C. Shock, B.M. Shock, and T. Welch*



*Figure 1. Furrow-irrigated onion grown at Ontario, Oregon, receives about twice as much water as the crop actually uses.*

Malheur Experiment Station, Oregon State University:  
Clint C. Shock, director and professor

Scientific Ecological Services, Ontario, Oregon: Byron  
M. Shock

Wild Iris Communications, Corvallis, Oregon: Teresa  
Welch

When water is plentiful, growers usually schedule irrigation practices around other farming activities. For example, most growers change furrow irrigation sets at 12- to 24-hour intervals because this timing is convenient and uses labor efficiently. However, long irrigation sets can waste water (Figure 1).

When water is in short supply, you need to rethink some practices to obtain maximum benefit from available water. After all, next to the land itself, water is a grower's second most important resource. It makes sense to exchange management and labor for water use efficiency.

Because irrigation districts must keep their systems charged with water, these practices have a greater impact as more growers use them.

Even when water is more plentiful, there are compelling reasons to use less. Excessive water use can waste soil and fertilizer in water runoff. Excessive irrigation results in deep percolation and leaching of nitrates, nitrites, and other farm chemicals. These contaminants contribute to the total daily load of chemicals carried by aquifers. Self regulation by growers typically benefits all parties interested in clean, plentiful water, including you and other growers. See Shock and Welch, 2011b, *TMDLs and Water Quality in the Malheur Basin: A Guide for Agriculture* (Sustainable Agriculture Techniques series, page 7).

## Approaches to using less water

You can improve irrigation efficiency by irrigation scheduling, adopting practices such as deficit irrigation and conservation tillage, and installing more efficient irrigation systems. Sprinkler and drip irrigation systems are more efficient than furrow irrigation. Some of these strategies entail additional costs, but they can also lead to higher market value of crops.

### *Avoid over-irrigation*

This sounds simple, but it isn't. Many growers err on the side of excess. Too much water has less visual impact than too little, but it wastes soil and fertilizer as well as water.











