

# KEEPING YOUR IRRIGATION SYSTEM IN TIP-TOP SHAPE WILL KEEP YOUR PLANTS HAPPY

*Caleb Carter*

Proper maintenance of an irrigation system is essential to keep the system running efficiently and to maintain uniform water applications.

Maintenance is one part inspection and two parts anticipation. Both help prevent wear on moving parts, clogging issues, and help you catch potential concerns before they become an issue. Keep spare parts available to replace commonly needed items.

The following details are important maintenance considerations for irrigation systems.

## Maintaining water delivery systems

Keep the water flowing. This includes keeping irrigation ditches and pipelines clear of debris as well as pump maintenance. Those who have rights to the water in an irrigation ditch bear the responsibility for ditch maintenance, even if it passes through another's property. An easement exists along irrigation ditches, allowing access for maintenance.

Ditch cleaning is typically a spring ritual. Cleaning includes removing tumbleweeds or other debris, burning of dead weeds and grass (with proper fire safety precautions taken), repairing ditch banks or damage from

rodents, removal of trees/shrubs that have encroached, and cleaning out sediment build-up. For smaller ditches, a shovel may be sufficient, while larger ditches may require a backhoe or excavator.

Check headgates to ensure proper operation. A broken headgate may prevent water from being diverted to a field, and a leak could cause flooding issues. Also, check any flow measurement structures including flumes and weirs for any damage or debris that might prevent proper measurements.

Irrigation pumps need regular inspection and maintenance. Proper maintenance not only allows a pump to deliver water most efficiently but can also reduce operation costs. See the sidebar on page 9 for more on evaluating your pumping plant.



## Flood Irrigation

Maintain a level field for the most uniform water application. For gated pipe, look for leaks, worn couplers, stuck or broken gates or cracks in the pipe, or sediment buildup. Remove gated pipe from a field used for grazing, when the pipe is not in use to prevent damage from livestock, especially if the pipe is near water tanks or other high traffic areas.

## Sprinkler Irrigation

Manufacturer guidelines and manuals are available for specific equipment. Regular maintenance can help reduce repair costs while maintaining the efficiency of the system.

Each system component should be checked regularly for worn or broken parts throughout the irrigation season. This includes checking nozzles for mismatched sizes, clogging, corrosion, and other wear and tear. Couplers and pipes can break or leak and may also need replacement.

Many of these issues can easily be identified while the system is in use. End-of-season maintenance is also important to ensure the system is operational for the next growing season. Don't put off repairs, or you may forget until you turn on water again in the spring!

Wheel lines should be secured for the winter by wiring to t-posts driven into the ground or securing to a fence. This can help prevent damage from livestock and secure it against movement by wind. Hand lines are typically removed and stacked off the field to allow for harvest or other farming operations.



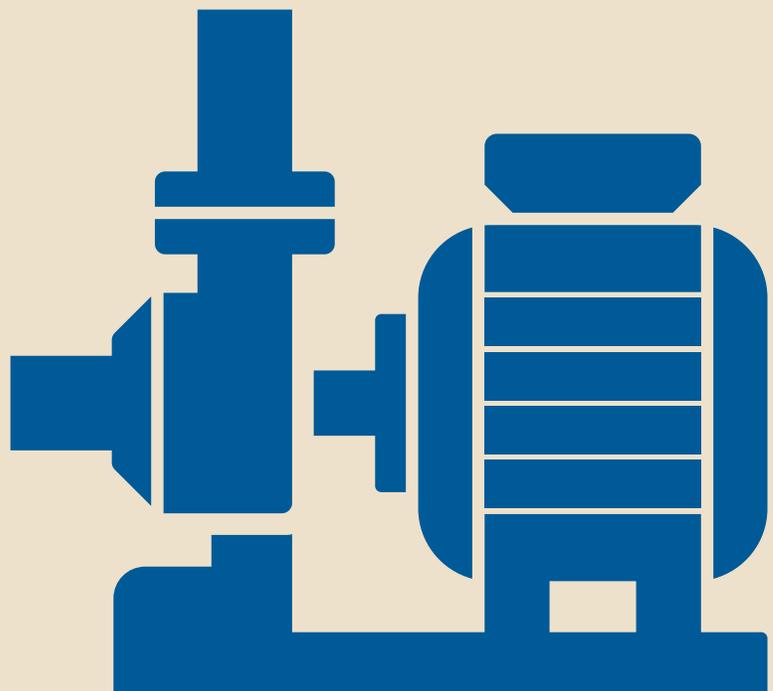
## Poor pump performance can cost money

A pump will wear out over time if used to pump groundwater or pressurize an irrigation system. Poor pump performance also may be caused by:

1. Pump designs poorly matched to the job (this might occur when an operator switches from gated pipe to a center pivot sprinkler or from a high-pressure sprinkler to a lower-pressure package without changing the pump),
2. Pumps that have worn impeller vanes and/or internal seals as a result of pumping sand, or
3. Impellers that were not properly adjusted within the pump bowls.

Regularly monitor the efficiency of the pumping plant to see if improvements could be made that could save energy expenses.

For more information on how to evaluate pumping plant performance, go to the Exploring Energy Efficiency & Alternatives Irrigation Efficiency: Pumping Plant Performance website (<http://bit.ly/irrigationefficiency>). This will walk you through the necessary steps, help estimate potential savings, and help estimate the potential payback period on improvements.





## Drip Irrigation

Emitter clogging and rodent damage are the biggest concerns with drip irrigation in Wyoming. Both can lead to constant maintenance and repairs.

Test the water prior to system installation to determine any potential problems, such as high pH, high salts, high sodium, and carbonates or bicarbonates.

Much of Wyoming water is alkaline (pH above 7.0, often exceeding 8.5 in some areas), due in large part to the carbonate/bicarbonate and lime content. This makes for very hard water, leading to precipitate buildup, which can clog lines and emitters.

Large systems can be treated by adding an acid, called acidizing. Biannual treatments or after 2 acre-feet are applied through the system is recommended. Acidizing is only recommended for large systems; for clogging issues in smaller drip systems in ornamental beds or gardens,

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replacing clogged nozzles or driplines is simpler and more cost-effective.

A filtration system may be necessary to reduce clogging by debris. The water source and cleanliness of the water determine the extent of the filtration system. If the source is potable water, a 150- to 200-mesh screen may be sufficient. If a secondary water source is used, such as from an irrigation ditch or pond, then

a more elaborate sand media filtration system may be necessary.

Flush the system and clean filters in spring, fall, and throughout the season as needed. Regular flushing helps remove large mineral particles and organic matter, which can clog emitters. Chlorine treatments can help treat algae buildup. Care should be taken during these treatments as too much chlorine can damage plants.

Rodent damage is best controlled by reducing populations prior to installation using traps, poison, etc. A solid plan for rodent management in the future is also necessary. Regular tillage can help reduce damage created by some rodents.

Please see the "Wyoming Small Acreage Irrigation Guide" link available at [barnyardsandbackyards.com](http://barnyardsandbackyards.com) for more information on irrigation system maintenance and other information on irrigating a small acreage. Click on "Water."

*An irrigation system wouldn't dare to perform poorly if **Caleb Carter** is around. He is a University of Wyoming Extension educator serving southeast Wyoming and can be reached at (307) 532-2436 or at [ccarte13@uwyo.edu](mailto:ccarte13@uwyo.edu). Check out his newsletter at [www.uwyoextension.org/highplainscropsite](http://www.uwyoextension.org/highplainscropsite).*