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Repair Leaky Gates/Gaskets to Save Money, Add Profit

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Repair Leaky Gates/Gaskets to Save Money, Add Profit

LINCOLN, Neb. & Keeping up on gravity irrigation repairs not only saves water, but time, money and labor, a University of Nebraska-Lincoln irrigation engineer said.

The off-season is the perfect time to make these repairs, said Dean Yonts, irrigation engineer at UNL's Panhandle Research and Extension Center at Scottsbluff.

"If you didn't flag leaky gaskets and mark leaky gates last irrigation season, be sure to do it this season," he said. "This way if you don't have time to change damaged gates during irrigation season, gaskets can be discarded at the end of the season and gates can be replaced after harvest."

Replacing gaskets and leaky gates can be a significant way to reduce irrigation costs.

This and other cost saving tips to help deal with high input costs in crop production can be found at UNL's Surviving High Input Costs in Crop Production" (**http://cropwatch.unl.edu/survivinghighinputcosts.htm**) Web page.

A flow meter also is a good way to estimate the amount of water that leaks from gates and gaskets, Yonts said.

"While leaks are not losses from the field, they do reduce the amount of water delivered to the set being irrigated," he said.

A Tri-Basin Natural Resource District study in the early 1990s showed that losses can exceed 50 percent.

Often, losses can be 20 percent to 30 percent, which is 5 to 6 gallons per minute per 30-foot length of pipe on most systems, Yonts said. A quarter mile length of pipe on a 1,000 gallon per minute well would deliver only 750 gallons per minute to the set if the water loss is 25 percent.

"Reducing leaks also saves labor by having to have fewer sets per irrigation," Yonts said.

If you were to eliminate two sets at 12-hours per set with a 1,000 gallon-per-minute well that did five irrigations per year at $10 per acre-inch pumped and $1.03 per acre per year to replace gates and gaskets, it would result in an added profit of about $32.10 per acre.

Fixing leaks also can improve water quality, Yonts said.

Severe leaks can add a constant supply of water to one area during irrigation. On silt-loam soils, one gallon per minute running down a row will advance only about 100 feet. If that loss were to occur uniformly along the pipeline, it would amount to about 3 acres along the pipe. If 250 gallons per minute in leaks run for three days, 40 acre inches per irrigation will be applied to about 3 acres of cropland.

Previous research has found this can move an estimated 5 pounds of nitrate with every inch of water that leaches below the root zone.

"Continuous leaking has the potential to flush hundreds of pounds of nitrogen into the aquifer," he said. "Aside from contamination of the aquifer, it would take excess nitrogen to offset the loss, or acceptance, of fewer bushels produced form those three acres."

More information, resources and tables on this topic can be found on UNL's Surviving High Input Costs (**http://cropwatch.unl.edu/survivinghighinputcosts.htm**) Web site or at CropWatch (**http://cropwatch.unl.edu/**), UNL Extension's crop production newsletter.

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