

To Line A Ditch, Or Not?

Seepage is Recycled

As much as 15 to 20 percent of the water diverted for irrigation can be “lost” as ditch seepage even before the water reaches the field.

However, most ditch seepage eventually returns to the stream as groundwater inflow to be used downstream by other farmers, cities, industries, and well owners. The State of Colorado measures and accounts for this water.

Legally, other water users rely on ditch seepage in many places. As soon as water starts to seep back to the river, it is considered part of the river for the benefit of downstream users.



Wetlands & Plant Life

Ditch seepage also supports plants and wetlands. In Weld County, CO, over 90% of wetlands are created by irrigated agriculture. Some of these plants we value for their aesthetics and habitat, while others can be an invasive nuisance like Russian Olive and Tamarisk.

So Why Would You Line A Ditch?

Water Quality

Water picks up salts and other minerals like selenium from contact with soil. In western Colorado and the Colorado River Basin, piping and lining ditches have significantly reduced the salinity in rivers and streams that supply water to downstream states.⁷

Erosion

It is beneficial and common to line or pipe small stretches of a ditch that is made up of course soils or along steep inclines. In certain cases, ditch seepage can cause serious erosion and water can blow-out from the side of the ditch, causing a collapse

“Water Short”

It can also be beneficial to line a ditch that is “water short,” meaning not enough water is being diverted to meet the needs of the crop. By lining a ditch, the seepage water that would have flowed back to the stream, would instead flow through the lined ditch to the crop. However, this will impact any beneficial plants or wetlands along the ditch and will not provide any valuable seepage downstream. The crop will likely consume more water and production will increase.



1) Browning and Bushong (1992) “Ditch Lining: The Water Right Issue,” *Colorado Lawyer*, & Quinn et al. (1989) “Water Seepage from Unlined Ditches and Reservoirs,” *California Agriculture*, Vol 43, No 6, 2) Luckey and Cannia (2006) Groundwater flow model of the western model unit fo the Nebraska Cooperative Hydrology Study. 3) Completion Report No. 190, Colorado Water Resources Research Institute & Completion Report no. 232, Colorado Water Institute 4) *Fort Morgan Reservoir & Irrigation Co. v. McCune*, 206 P. 393 (Colo. 1922). 5) DiNatale et al. (2008) “Meeting Colorado’s future water supply needs: Opportunities and challenges associated with potential agricultural water conservation measures” Colorado Water Institute. 6) Sueltenfuss et al. (2013) “The Creation and Maintenance of Wetland Ecosystems from Irrigation Canal and Reservoir Seepage in a Semi-Arid Landscape” *Society of Wetland Scientists*. 7) Completion Report no. 232, Colorado Water Institute