

RETURN FLOWS: IRRIGATION EFFICIENCY GOES UP, THEY GO DOWN

Don Schwindt, rancher from Cortez

Bill Trampe, rancher from Gunnison

David Kanzer, Deputy Chief Engineer, Colorado River District

Farmers, ranchers and agricultural water users are under growing pressure from many sides to increase their water-use efficiency. However, this can come with undue costs and unintended consequences, as attendees heard from a panel at the Colorado River District's Annual Seminar.

There are many advantages to modernizing irrigation systems and practices, including the extension of water supplies and benefits to stream water quality. But while the conversion from open ditches and flood irrigation to pressurized pipelines and sprinklers, for example, can save water and reduce selenium and salinity in local streams, historical agricultural return flows can be adversely affected, impacting neighboring water users and even damaging wetland habitats that have been nurtured by previous inefficient practices.

David Kanzer, River District Deputy Chief Engineer, said efficiency gains have resulted in improvements to water management, increased agriculture production, as well as reduced contaminant loading and improved stream quality. But he further explained that there are existing benefits generated by flood irrigation and leaky ditches that produce return flows that support late-season, cool, river base flows as well as local irrigation-induced wetlands and upland vegetation.

Testifying to personal experience with changes was Don Schwindt. "I'm a farmer; that's what I do. That's mostly what I know," he said before explaining his operations near Cortez.

After working to improve water efficiency for several decades, he expressed doubts whether we fully understand the unintended consequences of changed irrigation practices to underground water tables. At specific times and places, crops can be irrigated not by what is being applied from above, but rather by water derived from groundwater.

Still, results are mixed.

"Financially, I am much more productive, because of the better crop I can raise. I can get more money for it, but when it comes to total consumptive use, I don't know how much it has actually increased," he said. The longer growing season of recent years also requires more water, he pointed out.

What particularly concerns him about impacts of more high-tech applications of water to his hay fields is the loss of return flows that have benefited giant cottonwood trees and shrubs bordering his fields. He calls them environmental benefits. "Those kinds of needs aren't being addressed in water efficiency," he said. And a better understanding of how water moves in and out of aquifers is also needed.

Bill Trampe irrigates high mountain valleys to produce grass hay for his cattle operation in Gunnison County, just as his father did before him, and he also expressed doubts whether enough accounting has been done with respect to water efficiency. He said, as less water is applied to his fields whether through more efficient systems or, as irrigated land is taken out of production, mostly for houses, the resulting loss of irrigation water means that ground water levels fall. Wells must be dug deeper and hay production can actually decrease as the root zone no longer intersects available ground water.

As for leaving water in streams - if that is what society wants, then it needs to pay for it, according to Trampe. "I will do whatever the market dictates. If I can sprinkle and create more crop and do better financially, that's probably where I'll go - I don't get paid for producing wildlife habitat and I don't get paid for producing aquifer levels for domestic wells."

In concluding the panel, Kanzer remarked to the attendees, "as you can hear, one-sized irrigation boot does not fit all." One irrigator's site-specific irrigation efficiency solution can be another's challenge.