Iowa is blessed with good soils and generally adequate rainfall for growing quality crops. However, rain doesn’t always fall at the right times nor in the right amounts — too much when it’s not needed and not enough when the crops could use more.

But what if water could be saved for use during the drier periods? That’s the goal of drainage water recycling, an emerging practice where subsurface drainage water is captured in the spring and stored for supplemental irrigation in the summer.

Drainage water recycling has the potential for multiple win–wins. It’s one of the few edge-of-field practices that have both crop production and downstream water quality benefits. Most edge-of-field practices target either nitrogen or phosphorus reductions, but drainage water recycling reduces the loss of both nutrients. If done on a large-enough scale, drainage water recycling could also reduce downstream flooding as well as water quality concerns.

Researchers with the Transforming Drainage Project are studying drainage water recycling as part of a five-year, eight-state project funded by the United States Department of Agriculture (USDA). Chris Hay, senior environmental scientist at the Iowa Soybean Association (ISA), is a collaborator on the project.

“Drainage water recycling has shown promise for boosting soybean and corn yields at sites in Missouri and Ohio, which have been in operation the longest,” says Hay. “But more locations and more data are needed to fully assess the feasibility, including impacts on downstream water quality and the economics of these systems.”

Drainage water recycling is widely adopted in Iowa, more examples and data are necessary. These systems require a large capital investment for installation, but it has promise for real returns on the investment.

Positive for revenue

“This practice has potential for actual revenue by increasing crop yields,” says Hurburgh. “That’s the way we’re going to get the nutrient problem solved, by making something economically feasible out of the problem.”

The Natural Resources Conservation Service (NRCS) has cost share options available for these systems by combining several conservation practice standards. Transforming Drainage project members and the NRCS are formulating how drainage water recycling could be funded as a single practice. ISA and partner organizations are also exploring innovative financing solutions where multiple beneficiaries could pay for conservation practices, including drainage water recycling.

Contact Carol Brown at cbrown@iasoybeans.com.