Water Recycling

What it is

Water recycling (also commonly known as water reuse) reclaims water from a variety of sources then treats and reuses it for beneficial purposes such as irrigation, livestock water supply, groundwater replenishment, and environmental restoration.

Why is it important?

Water recycling can provide alternatives to existing water supplies, reducing surface and groundwater depletion. Source water depletion contributes to decreased water levels of surface water bodies and groundwater resources, water withdrawal cost increase, deterioration of water quality, land subsidence, stressed vegetation and livestock, degradation of wildlife habitat, and negative impact of neighboring water resources.

For further information, please contact your local NRCS Office.

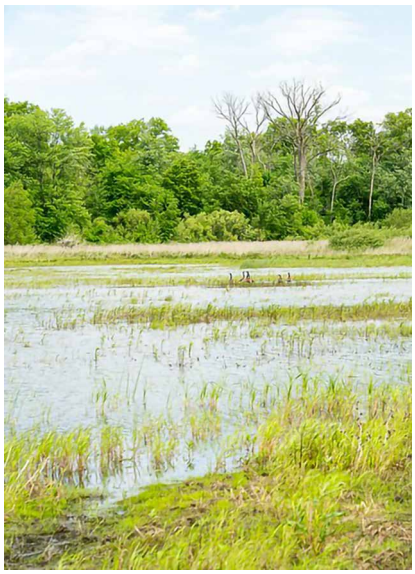
How can it be implemented?

The following are several engineering Conservation Practice Standards (CPS) that support agricultural water reuse. For additional information on these practices, and others, please visit the NRCS National CPS web page.

Practice Code(s)	Conservation Practice Standard(s)	Beneficial Attributes
436	Irrigation Reservoir	The reservoir is used to store diverted surface water, groundwater, or irrigation tailwater in a dam, pit, or tank for later use or reuse.
606, 607	Subsurface Drain, Subsurface Drain (Field Ditch)	In-field conduits are used to collect and convey excess water for beneficial use or reuse and improve soil, water, air, and plant relationships.
558	Roof Runoff Structure	Gutters and downspouts collect and convey precipitation runoff from roofs to increase available water for other uses.
636	Water Harvesting Catchment	Water is harvested from impervious surfaces and stored in a tank or cistern to provide water for livestock, fish, wildlife, or other conservation purpose.
605, 604	Denitrifying Bioreactor, Saturated buffer	Structure reduces the concentration of nitrate nitrogen-nitrogen in subsurface agricultural drainage flow through enhanced denitrification for improved water quality and fit-for-purpose reuse.
632	Waste Separation Facility	Facilities reduce solid content in waste streams so liquid can be recycled for other uses, such as irrigation.
591	Amendments for Treatment of Agricultural Waste	Chemical or biological amendments alter the physical and chemical characteristics of the waste stream for improved water quality and recycling.
640	Waterspreading	Surface spreading of runoff over flat areas facilitates groundwater recovery for future reuse.
447	Irrigation and Drainage Tailwater Recovery	Storage and reuse of recoverable irrigation and rainfall runoff, or field drain water can conserve water supplies, reduce energy use, and improve offsite water quality.

How can it be implemented? (Continued)

Interim Practice Code(s)	New Conservation Practice Standard(s)	Beneficial Attributes
815	Groundwater Recharge Basin or Trench	An off-channel impoundment, with a permeable base underlain by an unconfined aquifer utilizes stormwater runoff or surface water deliveries to facilitate aquifer recharge for future reuse.
817	On-Farm Recharge	The periodic application of surface or stormwater runoff to amenable cropland located in an area with connectivity to an unconfined aquifer to facilitate aquifer recharge for future reuse.
782	Phosphorus Removal System	Structure reduces phosphorus concentration in subsurface agricultural drainage using a filtering media for improved water quality and fit-for-purpose reuse.



Water recycling at a glance

Illustration		Location and Description
		Texas: Rainfall runoff is piped from the gutter (left) into the storage tanks where there is an overflow pipe (right). The water is then transported by gravity through a livestock pipeline to watering troughs to meet the livestock watering resource needs. This system utilizes first flush flow diversion to support enhanced water quality.
		Arkansas: Sixty (60) acre irrigation reservoir (left) captures rainwater and runoff from agricultural fields and subsequently meets rice water quantity needs using side inlet irrigation (right).
		Florida: Nursery growers use evaporative cellulose cooling pads (left) where excess water drains into a trough and is routed into a tank to be recirculated and reused utilizing a recycling system (right). Only as much water is used to replenish what is lost from evaporation and bleeds off for mineral content reduction.
		Pakistan: A small vegetable garden is irrigated using a bucket drip irrigation system. Reclaimed irrigation water is poured into the raised drip bucket (left) and applied through small holes in the drip-line (right) to water the plants.