



ENVIRONMENTAL STEWARDSHIP

Conserving Water and Keeping It Clean

Water resources provide a wide range of important services, including drinking water, irrigation, power, fisheries, wildlife habitat, recreation, and ecosystem functions. Changes in population, land use, and climate have exerted increasing stress on water supplies and water quality, posing serious risks to environmental and human health. Land-grant university research and Extension are finding innovative ways to conserve our precious water resources and protect water quality.

HERE ARE A FEW EXAMPLES:

- Researchers in **New Mexico** developed policy analysis models to compare options for protecting aquifers and adapting to various water supply scenarios under different potential climate conditions.
- A 12-year computer simulation by scientists in **Pennsylvania** showed that dairy farms using conservation strategies reduced the amount of sediment and chemical runoff compared to typical small dairy farms.
- Extension personnel in **Florida** showed growers how to use soil moisture sensors to make smarter irrigation decisions. Twenty-six soil moisture sensors were installed in corn, peanut, cotton, hay, watermelon, strawberry, citrus, and elderberry fields. Since installing the sensors, one large corn farm estimates 160 million gallons of irrigation water have been saved each season.
- **Ohio** researchers provided local data and developed tools that help farmers make management decisions thereby reducing the amount of runoff from their farmland.
- Researchers in **Vermont** showed that spreading woodchips in heavy-use areas on dairy farms reduces water runoff by up to 50%, and the water that does run off is cleaner. This keeps dirty water out of nearby bodies of water and reduces wastewater treatment costs.
- Researchers in **Iowa** installed over 20 saturated buffers, which intercept water that drains off fields and filter out sediment and excess nutrients before the water enters streams.
- Scientists in **Hawaii** designed handheld devices that give coffee growers an inexpensive way to spot leaf water stress and optimize irrigation.
- **Nebraska** Extension provided farmers with tools and technical assistance that reduced irrigation water use by an estimated 120.3 million gallons.
- Guided by local Extension agents and educational materials, 588 **Kentucky** residents used appropriate landscaping, septic system maintenance, flood management, and other practices on their properties to protect water quality.

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- **Texas** Extension educational programs on reducing household water use and improving irrigation efficiency in lawns, landscapes, and agricultural systems have resulted in estimated annual savings of 2.1 billion gallons (enough to supply 13,300 households).
- Because of water conservation programs in **Florida**, residents adopted landscape management practices that save an estimated 387 million gallons of water each year—enough to supply over 4,300 household for a whole year. Total annual water bill savings are estimated to be over \$1.2 million.
- An **Oklahoma** program that installed more efficient irrigation heads and nozzles reduced water use by an estimated 374,000 gallons and saved participating households at least \$28 per year.
- **Ohio** research informed updated standards for design and performance of stormwater control measures. Updates emphasize innovative approaches, such as bioretention, permeable pavement, and green roofs to manage stormwater. Researchers also certified more than 180 landscape professionals, public officials, and engineers in best methods for long-term maintenance of stormwater control measures.
- Hands-on training in **Nebraska** has encouraged the use of rain gardens and bioretention gardens to capture nutrients and other contaminants from stormwater runoff.
- **Ohio** researchers are looking at water quality and biodiversity in coastal wetlands to understand the benefits of restoration efforts.
- Outreach efforts in **Texas** contributed to the restoration of the Plum Creek Watershed. This led to the first-ever removal of a watershed from the U.S. EPA's list of impaired water bodies.
- Scientists in **Ohio** raised and released rare and threatened fishes to help restore populations. They also conducted educational programs about aquatic invasive species for over 11,000 individuals.

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