

Agriculture and Water Quality

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A variety of factors contribute to water quality including nutrient runoff, sediment generated by erosion, and agricultural chemicals. With the weather conditions we've seen in Iowa this spring, the combination of excess precipitation and readily available soil nutrients create ideal conditions for nutrient loss.

Years ago, farmers dug ditches, buried clay tile lines, and built up the land to turn what was once a swamp into some of the most productive farmland in the world. Modern drainage tile is perforated, plastic tubing buried 3 - 6 feet below the soil surface. It is designed to quickly drain excess water from saturated soils to ensure plant health and allow field work to resume after excessive rain. Without tile, much of Iowa's land would be untouchable with large-scale modern equipment. The lack of slope in parts of the state causes water to sit on fields for extended periods if not properly drained. Standing water on cropland generates anaerobic soil conditions, suffocating the corn or soybeans that inhabit the field. While tile is extremely beneficial in the drainage of arable land, it also doubles as a fast track to carry groundwater directly into ditches, streams and rivers. The water that was once sitting on the surface filters through the soil profile, picking up nitrates, chemical residue, phosphorus, and anything else that isn't being used by the soil or plant. Once it enters the plastic tile line, it quickly flows across the field, enters a moving body of water, and eventually finds its way to rivers and lakes.

While there may never be a 100% reduction of excess nutrients in Iowa's watershed, farmers are taking steps in the right direction. Technology has helped reduce nutrient runoff by allowing more timely, accurate, and prescribed applications of fertilizers. Farmers are also implementing cover crops, bioreactors, and no-till farming practices to retain soil nutrients and reduce runoff while fields are fallow over the winter months. Farmers will continue to deploy practices that help keep fertilizer in the field where it can be utilized by their crops, rather than in a stream where it could negatively impact the environment. Solutions to improve water quality have come a long way and will continue to evolve in the years to come.