Burke, M. W. V., Shahabi, M., Xu, Y., Zheng, H., Zhang, X., & VanLooy, J. (2018). Identifying the Driving Factors of Water Quality in a Sub-Watershed of the Republican River Basin, Kansas USA. International journal of environmental research and public health, 15(5), 1041. https://nam12.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdoi.org%2F10.3390%2Fijerph15051041&data=05%7C02%7CALIVE-WELL-UPDATES%40LIST.UIOWA.EDU%7Cc9fe890b43924b74b65a08dc55c50113%7C1bc445959aba4fc3b8ec7b94a5586fdc%7C1%7C0%7C638479551808382471%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C%7C&sdata=ktC0EZVbESdjA1d9mlUcAcy%2B4Hissq8tUGdrA8gqzpo%3D&reserved=0

Studies have shown that the agricultural expansion and land use changes in the Midwest of the U.S. are major drivers for increased nonpoint source pollution throughout the regional river systems. In this study, we empirically examined the relationship of planted area and production of three dominant crops with nitrate flux in the Republican River, Kansas, a sub-watershed of Mississippi River Basin. Our results show that land use in the region could not explain the observed changes in nitrate flux in the river. Instead, after including explanatory variables such as precipitation, growing degree days, and well water irrigation in the regression model we found that irrigation and spring precipitation could explain >85% of the variability in nitrate flux from 2000 to 2014. This suggests that changes in crop acreage and production alone cannot explain variability in nitrate flux. Future agricultural policy for the region should focus on controlling both the timing and amount of fertilizer applied to the field to reduce the potential leaching of excess fertilizer through spring time runoff and/or over-irrigation into nearby river systems.

Protect your home's water | US EPA. (2023, March 1). US EPA. https://nam12.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.epa.gov%2Fprivatewells%2Fprotect-your-homes-water&data=05%7C02%7CALIVE-WELL-UPDATES%40LIST.UIOWA.EDU%7Cc9fe890b43924b74b65a08dc55c50113%7C1bc445959aba4fc3b8ec7b94a5586fdc%7C1%7C0%7C638479551808382471%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C%7C&sdata=LbudXrFJSSN7w6874H0Ba72F02gCo%2BjRCPql1o7%2FviY%3D&reserved=0

This article includes information on testing wells to safeguard your water; ways to prevent well water pollution; sources of potential contamination in your community; and how to protect your water following a natural disaster or emergency.

Bradley, P. M., Kolpin, D. W., Thompson, D. A., Romanok, K. M., Smalling, K. L., Breitmeyer, S. E., Cardon, M. C., Cwiertny, D. M., Evans, N., Field, R. W., Focazio, M. J., Beane Freeman, L. E., Givens, C. E., Gray, J. L., Hager, G. L., Hladik, M. L., Hofmann, J. N., Jones, R. R., Kanagy, L. K., Lane, R. F., ... Ward, M. H. (2023). Juxtaposition of intensive agriculture, vulnerable aquifers, and mixed chemical/microbial exposures in private-well tapwater in northeast Iowa. The Science of the total environment, 868, 161672. https://nam12.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdoi.org%2F10.1016%2Fj.scitotenv.2023.161672&data=05%7C02%7CALIVE-WELL-

In the United States and globally, contaminant exposure in unregulated private-well point-of-use tapwater (TW) is a recognized public-health data gap and an obstacle to both risk-management and homeowner decision making. To help address the lack of data on broad contaminant exposures in private-well TW from hydrologically-vulnerable (alluvial, karst) aquifers in agriculturally-intensive landscapes, samples were collected in 2018-2019 from 47 northeast Iowa farms and analyzed for 35 inorganics, 437 unique organics, 5 in vitro bioassays, and 11 microbial assays. Twenty-six inorganics and 51 organics, dominated by pesticides and related transformation products (35 herbicide-, 5 insecticide-, and 2 fungicide-related), were observed in TW. Heterotrophic bacteria detections were near ubiquitous (94 % of the samples), with detection of total coliform bacteria in 28 % of the samples and growth on at least one putative-pathogen selective media across all TW samples. Health-based hazard index screening levels were exceeded frequently in private-well TW and attributed primarily to inorganics (nitrate, uranium). Results support incorporation of residential treatment systems to protect against contaminant exposure and the need for increased monitoring of rural private-well homes. Continued assessment of unmonitored and unregulated private-supply TW is needed to model contaminant exposures and human-health risks.