



New Research Identifies Tool to Mitigate Phosphorus

Calcium Sulfate (gypsum) soil amendment reduces SRP loading by over 50%

Nutrient runoff from agricultural fields is one source of pollution that impacts the integrity of our waterways and the quality of our critical water resources. Fertilizers and animal manures are important sources of the nutrients nitrogen and phosphorus. These help to maintain the productivity of farmland and our nation’s food security in the current agricultural landscape, but they can also impact the environment once they leave the field and enter our lakes and rivers. In the Midwest, phosphorus from farm activities in areas like the Maumee River watershed in Indiana and Ohio contribute to annual “blooms” of algae in Lake Erie that kill wildlife, pollute drinking water with toxins, and disrupt economic growth.

Given the importance of both fruitful and reliable agriculture and the need to safeguard high-quality water resources into the future, research is being conducted into tools that will allow farmers to support their livelihoods while acting as responsible stewards of the lands and waters their farms impact.

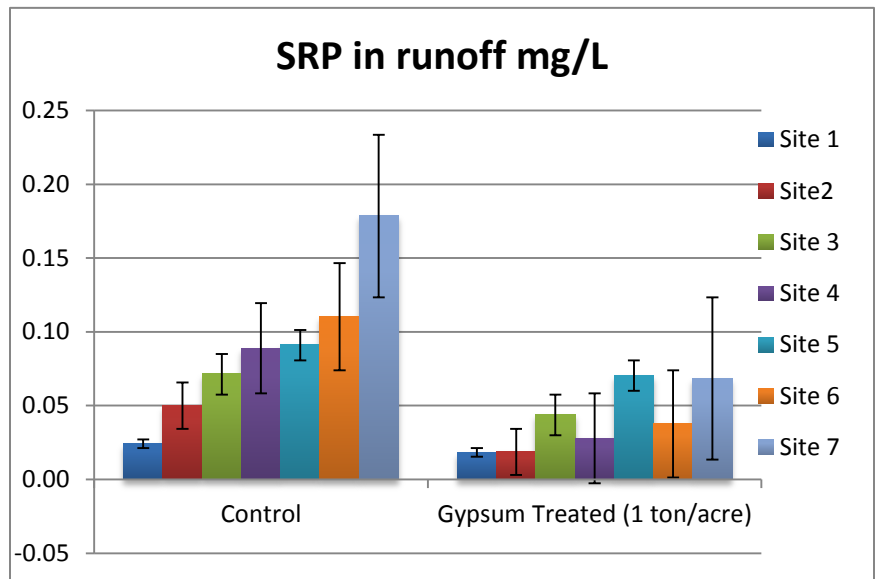
One such tool is calcium sulfate (gypsum), and a study underway in Ohio is yielding extremely promising results after just the first use. Gypsum is a naturally occurring mineral that has been recognized for its benefits to agriculture for hundreds of years. It is also a byproduct of flue gas desulfurization (FGD) systems, or the coal-fired power plant “scrubbers” that have been installed in many plants to remove sulfur from their exhaust and reduce acid rain.



Water samples from control and treated fields.

Our research, designed and led by Dr. Warren Dick of the Ohio State University, takes this valuable material (which is often disposed in landfills) and reuses it as a beneficial soil amendment that supports environmental, agricultural, and human health priorities.

Even though this research is still underway, it is demonstrating extremely positive results after just the first use. A single application of FGD gypsum on test sites in the Maumee River watershed reduced concentrations of soluble reactive phosphorus (SRP), the most troublesome form in the area waterways, by a significant amount. The gypsum-treated plots showed an average 55% reduction of soluble reactive phosphorus in runoff water compared to the untreated plots.



Data collected from drainage tiles on multiple farms in the Maumee River watershed

FGD gypsum, as part of a comprehensive nutrient management strategy, holds significant potential to improve water quality in many areas affected by agriculture, from the Great Lakes to the Gulf of Mexico and beyond. In fact, gypsum is a “win-win” in that farmers are already applying it to improve their soil quality and to improve crop yields. This research documents the environmental benefits of gypsum use to complement the economic ones that are increasingly being recognized.

Work to find these types of solutions is critical and is supported by many stakeholders; from farmers to regulators to environmental groups.

To learn more about this research or other beneficial work using FGD gypsum, please contact Dan Peerless at dpeerless@greenleafadvisors.net.