



Woodchip-Filled Filter Socks Help Mitigate Nutrient Runoff

July 1, 2024

The experimental setup for testing the nutrient removal potential of woodchip bioditch reactors

The experimental setup for testing the nutrient removal potential of woodchip bioditch reactors at the Arkansas State University Farm Complex in Jonesboro, AK. Photo by Jerry Farris.

Excess nitrogen and phosphorus from agricultural runoff can harm rivers, lakes, and streams, and eventually end up damaging coastal environments like the Gulf of Mexico. Farmers need practical, economical conservation strategies to help reduce the amount of nutrients leaving row crop production farmland.

Scientists at the USDA-ARS in Oxford, MS, along with their collaborators at Arkansas State University, examined an innovative practice using woodchip-filled nylon mesh filter socks as bioditch reactors to route agricultural drainage through and mitigate nutrient loads. Normally used for erosion control on construction sites, the scientists tested this technology in small-scale experiments. They found that woodchip filter

socks successfully decreased the load of nitrogen in runoff, but the phosphorus load was sometimes higher in the presence of the filter socks. They also discovered that filter socks that were constantly wet in the small experimental systems were better able to remove nitrogen loads than socks that had been left dry for a time.

While the results of this experiment are promising for future farmer implementation, further studies are needed to determine whether the nitrogen is completely transformed to N₂ in the filter sock environments to reduce greenhouse gas emissions.

Adapted from

Payne, G. K., Moore, M. T., Krajcir, K. J., Classen, R., & Farris, J. L. (2024). Evaluation of woodchip–bioditch reactors as a nutrient reduction conservation strategy.

Agrosystems, Geosciences & Environment, 7, e20455.

<https://doi.org/10.1002/agg2.20455>

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