

Healthy Soils, Healthy Drains, Healthy Lakes



Soil Erosion

Dave Brandt, an Ohio cover crop farmer, shared at a recent event that soil erosion the thickness of a sheet of paper works out to the loss of 10t of topsoil per acre. *Would you have guessed it's that much?*

Continual loss of that much topsoil results in far more fertilizer and amendment input costs, not to mention more frequent drain maintenance or clean-outs. Additionally, the nutrient and soil loading into drains and creeks lowers water quality downstream. Implementation of best management practices can keep your topsoil where it belongs – on your fields, not in drains.

Best management practices include cover crops, conservation tillage, buffer strips, wind breaks, and nutrient management.

Feed the soil, not the water!

Phosphorus is a “growth-limiting” factor – it is naturally present in low concentrations, however when it suddenly becomes readily available in water it causes algae to bloom, which has many detrimental effects. If your ditches are thick with algae and the water is cloudy from suspended sediment, chances are your nutrients and soil are not staying where you want them. By adopting best management practices – such as 4R nutrient stewardship – nutrient losses, soil erosion, and field input costs can be minimized. Infield improvements will be reflected in the health of your drains.



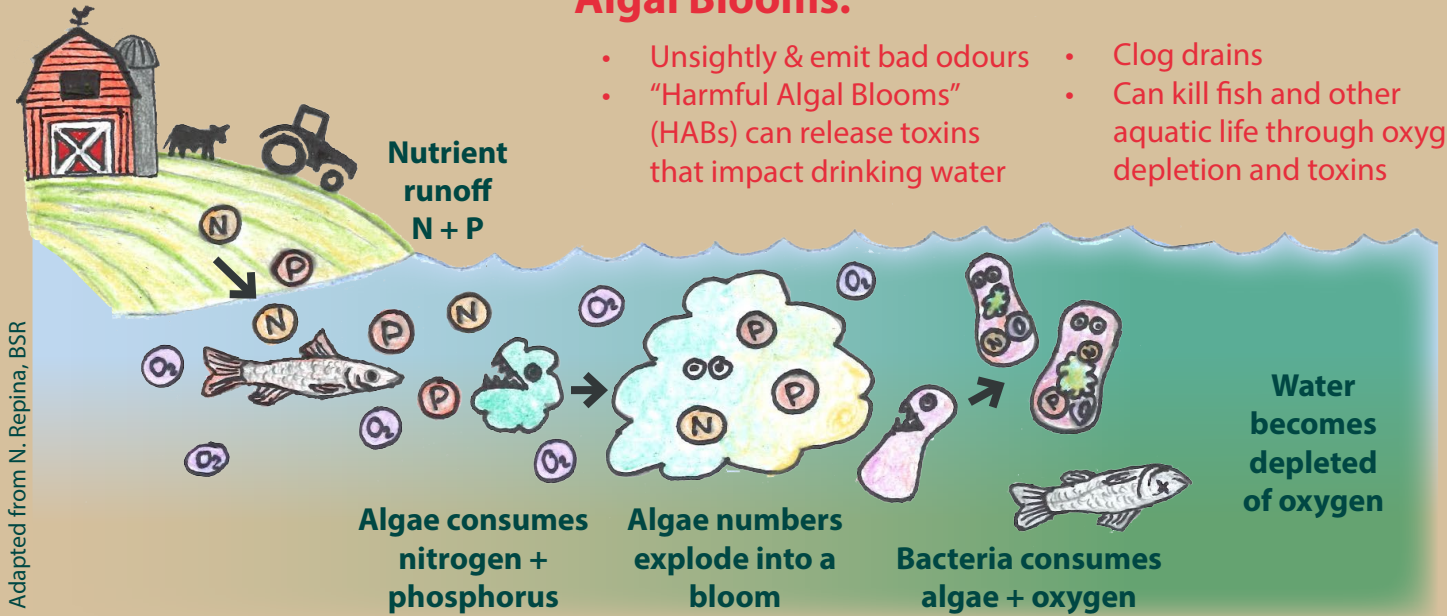
By applying the right fertilizer to the field at the right rate, at the right time, and in the right place nutrient losses can be minimized.



Actions upstream have consequences downstream. Minimize phosphorus loss and maximize crop uptake to prevent algae blooms like this one that occurred in July 2015.

Algal Blooms:

- Unsightly & emit bad odours
- "Harmful Algal Blooms" (HABs) can release toxins that impact drinking water
- Clog drains
- Can kill fish and other aquatic life through oxygen depletion and toxins

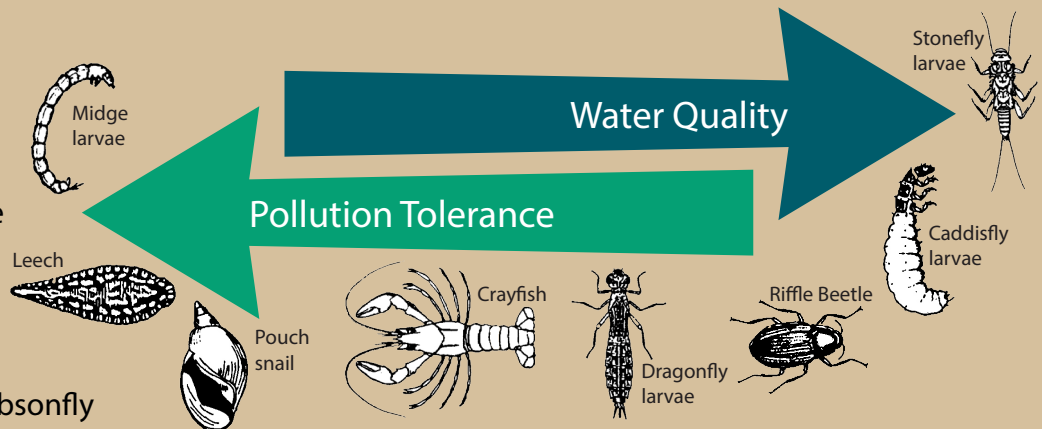


Poor water quality should 'bug' you

Just as the presence of soil "beneficials" are an indicator of soil health, "stream bugs" are an indicator of water quality

Stream bugs tell a story

"Stream bugs" can be used as a monitoring tool – by going out and looking at what bugs are living in a watercourse, we can learn about the health of the system. Some "bugs," like worms and leeches, have a high tolerance for excess nutrients, sedimentation, and low dissolved oxygen. Others, like stonefly and dobsonfly larvae, require high oxygen and balanced nutrient levels.



Drain Water Quality

What stream bugs would you find in these two drains? Drain A is receiving excess nutrients, so you would likely find midge larvae and leeches. Drain B has a wider buffer, improved water quality and therefore would likely have more diversity in its stream bugs from midge larvae to dragonfly larvae.

By adopting best management practices like 4R nutrient stewardship, not only will you reduce your inputs and keep your nutrients, you will help to keep the soil, drains, and lakes healthy.

