Meissner Prairie – Corron Preserve

Woodchip Bioreactor Field Day

Presented to
Fox River Ecosystem Partnership
June 12, 2019
Table 2.1. Watershed milestones and targets.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Phase 1 Milestones</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrate-nitrogen</td>
<td>15 percent by 2025</td>
<td>45 percent</td>
</tr>
<tr>
<td>Total phosphorus</td>
<td>25 percent by 2025</td>
<td>45 percent</td>
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</tbody>
</table>

The loss reductions goals for point sources, agricultural non-point sources, and urban non-point sources are in proportion to their contribution, as shown in Figures 2.1, 2.2, and 2.3. For example, once the hypoxia-related target reduction for total phosphorus from point sources is achieved, point source discharges will not be obligated to reduce further to address loading to the Mississippi River.

Figure 2.1. The proportion of nitrate and total phosphorus lost to the Mississippi River by source.
Northern Most Bioreactor in the State of Illinois

Agricultural Sciences Volume 1 and Farm Knowledge – A Complete Manual Volume 2 (1919) provide insight into soil microclimates to maximize Nitrogen removal potential.
Treating water from approximately 40 acres
Construction prior to Field Day
Thank you to our speakers

Ken Anderson – Kane County Forest Preserve

Mike Kenyon – Kane County Forest Preserve

Lauren Lurkins – Director of Natural & Environmental Resources, Illinois Farm Bureau

Tom Huddleston – Huddleston-McBride Drainage Company

Jodie Wollnik – Director – Kane County Environmental & Water Resources

Graduate Students, Department of Crop Sciences – University of Illinois
Educational signage along walk from parking area

PRESERVING OUR WATER
Illinois farmers and your community partners are working together to preserve our water. This site demonstrates innovative conservation efforts to prevent nutrient runoff and ensure that our water is preserved and protected.

NUTRIENTS & WATER QUALITY
- Water quality is impacted by two nutrients essential to plant growth, nitrogen and phosphorus. In higher concentrations, these nutrients over-feed algae. This removes oxygen from water, which is harmful to aquatic life.
- Nutrients in the Fox River Watershed come from wastewater treatment plants, lawn fertilizer, failing septic systems and agriculture. These excess nutrients contribute to the Gulf of Mexico Hypoxia which causes fish and shellfish kills each summer.
- Phosphorus binds to soil particles and enters waterways by way of surface runoff and erosion. Farmers use practices to reduce soil erosion to hold the phosphorus on the field until it is ready to be used by the crops.
- Nitrogen dissolves in water and can enter waterways via agricultural drain tile systems. Farmers can reduce nitrogen loss by using nitrogen “stabilizers” or treating tile water to remove nitrogen before it reaches a stream.

Each step WE take to improve water quality makes a difference.
For more information on how you can do your part to remove nutrients in the Fox River Watershed, go to www.countyofkane.org and look for the Clean Water for Kane logo!

Brought to you by these community partners to improve water quality in your neighborhoods:

Participating contractors:
- Huddleston-McBride Land Drainage Company
- Countryside Professional Land Drainage Services
- Campton Construction Inc.
Project Partners

Illinois Farm Bureau
Kane County Farm Bureau
Kane County Forest Preserve District
Kane County
USDA
Kane-DuPage Soil and Water Conservation District
Huddleston-McBride
Countryside Drainage
Campton Construction
WOODCHIP BIOREACTOR
STOP & TAKE A LOOK!

The woodchips provide the water-clearing bacteria carbon to fuel the process. Because it's the bacteria that clean the nitrate from the water, it's called a bioreactor.

The overflow control structure helps retain water in the bioreactor long enough for the bacteria to have time to convert the nitrate in the water to nitrogen gas, thus clearing the drainage water.

KANE COUNTY FARM BUREAU
Farm, Family, Food

USDA
Natural Resources Conservation Service

Funded in partnership through Illinois Farm Bureau Nutrient Stewardship Grant. www.ilfb.org/protect
Kane County Stormwater Ordinance Update

Effective June 1, 2019

Water Quality options for large open space projects to work towards Illinois Nutrient Loss Strategy Goals
Watershed Benefit Measures
Watershed Benefit Measures
Water with dissolved nitrates flows into a wood chip pit. The wood chips serve as a home and food for bacteria in the low-oxygen environment. Bacteria convert nitrates into dinitrogen gas, and water flows from the output minus nitrates.