**Appendix C – Nutrient Pilot Project Meeting Notes**

Minnesota Nutrient Reduction Strategy Pilot Project: Le Sueur River Watershed, Freeborn Lake Subwatershed

**Topic: N-BMP Tool and Minnesota Nutrient Planning Portal**

**Date:   March 18, 2015**

**Time:   9:30 AM-12:30 PM (Lunch provided)**

**Location:   T3s Grill, Freeborn, MN**

**Agenda**

**9:00 – 9:30 Coffee/snacks**

**9:30 – 12:30 Overview of Minnesota Nutrient Planning Portal, N-BMP Tool and**

 **Tomer’s Agricultural Planning Framework**

* Welcome and Introductions – Mark Schaetzke (15 min)
* Overview of Le Sueur River Watershed Information on the Minnesota Nutrient Planning Portal – Rick Moore, MSU  (30 minutes)
* Walk through the N BMP Tool for nitrogen and phosphorus - Wayne Anderson and Dave Wall - MPCA  (1 hour)
* Review subwatershed analysis based on Mark Tomer’s  [Agricultural Conservation Planning Framework](http://www.jswconline.org/content/68/5/113A.extract%22%20%5Ct%20%22_blank)  - Rick Moore, MSU  (1 hour)
* Questions and Answers (15 minutes)

**12:30 – 1:30 Lunch is provided**

Present:

19 people were in attendance at the informational meeting on March 18, 2015. Participants included other county SWCD staff (3), Freeborn County staff (4), Watershed District staff (1), Private business (4), Agricultural producers (4).

**Meeting Notes**

**Nutrient Reduction Strategy, N-BMP Tool** - Dave Wall

Nitrate standards are not set yet,

Phosphorus needs to be reduced 40-50%

General Stream Nitrate concentration

* Northern MN low
* Southern MN high

**Nitrogen Loads**

|  |  |
| --- | --- |
| Minnesota River Basin | Mississippi River Basin |
| Cropland drainage = 67% | 23% |
| Cropland groundwater = 18% | 57% |

**Reducing Nitrate**

Fertilizer, tile and drainage, and cover crops

Can stack BMPs in order to get to the 45% reduction

Bioreactors are very little = 2.7%

Two stage ditches are around 17-19%

Drainage – Le Sueur about 10% may be suitable for “control drainage”

WFS says most cover crops don’t work, unless both are short season crops

**Nutrient Reduction Strategy** - Wayne Anderson/Dave Wall

1993- Hypoxia “Dead Zone” in the Gulf

Government agencies meeting to talk and try to fix the problem – Hypoxia Task Force

Minnesota goal is to reduce nutrient runoff by 45% by 2040

Iowa and Illinois are worse

It is an uphill battle and need to find new ways to achieve this

Need local input for help

**Minnesota Nutrient Planning Portal** - Rick Moore, WRC

Nutrient portal was created to be tailored to each watershed

Working on three pilot projects in different watersheds, different topography, landscape

**Phosphorus Impacts**

1 Tbs of phosphorus grows 5 pounds of algae

(1 lbs Phosphorus can produce from 300 to 500 pounds of algae)

May through September water samples are taken

Farmers interested in understanding Phosphorus and Nitrogen runoff in tiles versus ground

Soils and geology types matter and make a big difference in runoff

**Funding for water storage?**

Design and infrastructure of water storage and flow – what happens when all storage is fall Nitrogen collection areas?

**Reducing Phosphorus**

Different ways to lessen nutrient reduction of P

People (you, government researchers) only focus on what they change (wastewater) and not other applications (Ag)

**Questions**

WRAPS process may be concerning and questionable

Buffer issues – this tool may provide science for the buffer act

Cobb River made a 5 year plan after ground-truthing after the tools

**Topic: N-BMP Tool and Minnesota Nutrient Planning Portal**

**Date:   March 18, 2015**

**Time:   12:30 – 4 PM (Lunch provided)**

**Location:   T3s Grill, Freeborn, MN**

**Agenda**

**12:30 – 1:30 Lunch**

**1:30-1:45 -** Welcome and Introductions – Mark Schaetzke, Freeborn Co SWCD

**1:45-2:30 Nutrient Reduction Strategy, Nitrogen and Phosphorus Overview,** N BMP Tool

- Dave Wall, Wayne Anderson, MPCA

**2:30-3:15** Review subwatershed analysis based on Mark Tomer’s

[Agricultural Conservation Planning Framework](http://www.jswconline.org/content/68/5/113A.extract%22%20%5Ct%20%22_blank)  - Rick Moore, MSU

3:15-4 :00 Feedback and discussion about potential nutrient planning opportunities

Questions and Answers

**Present**

Eight landowners and staff were present.

**Summary**

**Afternoon Discussion with Landowners**

**What are the main issues in holding landowners from completing projects? What are the barriers?**

* An impediment to conservation BMPs is lack of local staffing at NRCS and SWCD. NRCS and SWCD should have survey grade GPS to create more efficiency. Staff is using out dated technology.
* Longer completion times because of low staff numbers
* MN DNR: Existing regulations such as MN DNR public waters permit are an impediment to conservation BMPs. Add cost to projects that are designed to improve public waters. Permitting issues- high cost, slow turn around rate, poor communication with the agency.
* Money did not seem to be a huge issue in completing a project, but rather the amount of time it takes to obtain cost-sharing for projects of this type.
* Funding is an issue – note from Mark Schaetzke – audience contained one applicant for a RIM buffer and one applicant for a RIM wetland restoration. Both were good projects that would have improved the water quality in the watershed but there was not enough funding to secure these easements.

**Nitrogen Sources**

Landowners revisited several graphics presented in the MPCA’s power point. One of the graphics included a pie chart comparing two watersheds and the source of nitrogen in surface waters. There may have been some perception on the pie chart of finger pointing at the Le Sueur. They noted differences in the landscape that could account for the differences in the pie chart.

The major watershed the Le Sueur is in had the largest nitrogen source contributor as “Tile Drainage on Cropland” vs. “Ground Water from Cropland” in the compared watershed. Landowners felt that put a bull’s eye on producers in our area and those using tile drainage. They felt it was infeasible to not use tile drainage since it would mean many acres would no longer be suitable for production. Small discussion on controlled drainage and the suitability of the landscape for those systems in the specific area of Freeborn Co. Also increased cost of installing system that is not congruent with what is already in place. One landowner concerned about maintenance issues/timing of lifting/lowering boards.

Another graphic in the presentation that was discussed several times was the chart that showed sources of nitrogen: waste water treatment, cropland & other; along with the amount of previous, current and future goal of the amount of nitrogen reaching the Mississippi. A few landowners felt that even though cropland is a major contributor to nitrogen in surface waters, they feel that the “Other” category needs to be addressed as well to help reduce nitrogen and farmers shouldn’t be solely responsible in helping the reduction.

**Nitrogen Reduction**A graphic showing where nitrogen reduction can be accomplished by using the Maximum Return to Nitrogen Value (MRTN) rates suggested by the U of M was disputed because there was no information on what the goal yield was. They felt that since the MRTN rates were suggested throughout the state of MN it was not accurate for this region of MN. Cropland in Southern MN that has higher yielding capabilities and could use higher rates of nitrogen applied to it to reach higher yield goals. Suggested rate recommendations from IA should be used because in this area because soil/growing season is more similar to IA than northern MN.

It was the opinion in the small group of farmers that many producers in the area where not using the MRTN recommendations for MN. Some were using their own calculations on how much nitrogen to apply. Some had soil tests done and the ability to use variable rate fertilizer application. Not clear if they were applying the recommendations from agronomists that interpreted the soil tests.

**Fertilizer Application Timing**Some discussion on split application of Nitrogen between the fall and spring. Discussion of how much nitrogen is lost from fall application until spring. One farmer felt there was almost no nitrogen lost from fall application until spring if soil temperatures remained under 50 degrees Fahrenheit. Also mention was the practice of adding additional nitrogen after large rains in the spring leached spring applied nitrogen. One landowner said that many landowners have greatly improved their fertilizer application habits compared to past practice.

**Phosphorus versus Nitrogen**Not much discussion on phosphorus as opposed to nitrogen.

**Cover Crops**

Briefly discussed cover crops as an option to reduce phosphorus from entering surface waters. It was landowners’ opinion that there is very limited time for growth of cover crops from the time of cash crops physiological maturity until freeze up. That this limited growth did not produce added value compared to the high price of application. If there was a longer growing season in our region they could see how they would be of value. They recognize there are some success with cover crops in the area but only when cover crops are applied during times when RMA does not allow it. Concern among some farmers that cover crop application while cash crop is still growing would cause competition for moisture.

An assumption that fall N applied at soil temp less than 50 degrees does not have any more loss than spring applied N. Things are dormant under 50 degrees and losses occur in spring. Fall N application is OK on local clay soils. Our soils have a lot of organic N available that could leach out anyway.

We are too far north for cover crops. There is not enough time to get a real benefit from them here. Corn is cheap now and it would be hard to get return on investment. Potential liability or conflict with crop insurance with aerial application into standing crops.

**University of Minnesota Recommended Fertilizer Rates**U of MN fertilizer recommendations are too low for this area. They prefer to use Iowa recommendations. Use 0.9 lb N up to average (160 bushels?) then use 1.1 or 1.2 lb N for remainder (200-220 bushels). They set a yield goal and assume a linear relationship from applied N to yield.

**Conservation Drainage**

Most areas that are less than 1% slope already have tile drainage. The assumption is that a conservation drainage system would have to be a whole new system. Conservation drainage creates a management workload and liability of crop losses.

**Precipitation**Many nutrient losses are due to large rain events that are out of the producers control and it is infeasible to plan for 25 or 100 year rain events. Minnesota River was muddy at time of settlement. Nitrogen washes away during these events and they add more to replace expected losses so that they do not take a yield hit.

**PRODUCER COMMENTS (From Mark)**U of MN fertilizer recommendations are too low for this area. They prefer to use IA recommendations. Use 0.9 lb N up to average (160 bushels?) then use 1.1 or 1.2 lb N for remainder (200-220 bushels). They set a yield goal and assume a linear relationship from applied N to yield.

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**Minnesota Nutrient Reduction Strategy
Le Sueur – Freeborn Lake
Survey Results – March 18, 2015**

P=Phosphorus

N=Nitrogen

B=Both

The goal of this survey is to better understand landowner willingness to implement BMPs identified in Minnesota’s Nutrient Reduction Strategy. These results are a snapshot of landowner interest based on 8 completed surveys at a meeting in Freeborn County on March 18, 2015. Participants were primarily landowners and a few local staff working in the Freeborn Lake subwatershed of the Le Sueur River Watershed.

|  |  |
| --- | --- |
|  | Landowner Interest |
|  | 1 (Low)  | 2 | 3 | 4 | 5 (High) |
| **Fertilizer Use Efficiencies** |
| Recommended Fertilizer Rates (B) | 1 | 1 | 3 | 1 | 2 |
| Placement and Timing of application (B) |  |  |  | 5 | 3 |
| Reducing soil P (P) | 2 | 3 |  | 2 | 1 |
| Livestock feed management (P) |  | 3 | 2 | 2 |  |
| Nitrification inhibitors (N) | 1 | 2 | 3 | 2 |  |
|  |  |  |  |  |  |
| **Increase and Target Living Cover** |
| Cover Crops (B) | 1 | 2 | 3 | 2 |  |
| Perennial Buffers (B) |  |  | 4 | 2 | 1 |
| Forage and biomass planting (B) | 2 | 3 | 2 | 1 | 1 |
| Perennial energy crops (B) | 2 | 1 | 1 | 2 | 1 |
| Conservation easements and land retirements (B) | 2 |  | 3 | 2 | 1 |
|  |  |  |  |  |  |
| **Drainage Water Retention and Treatment** |
| Constructed Wetlands (N) |  | 2 | 2 | 3 | 1 |
| Controlled drainage (N) |  | 2 | 4 | 2 |  |
| Bioreactors (N) | 2 | 2 | 2 | 2 |  |
| Two stage ditches (N) | 1 | 2 | 1 | 4 |  |
|  |  |  |  |  |  |
| **Field Erosion Control** |
| Conservation Tillage and residue management (P) |  | 1 | 2 | 3 | 1 |
| Terraces/grasses waterways (P) |  | 1 | 3 | 4 |  |
| Sediment control basins (P) | 1 | 1 | 3 | 2 | 1 |
|  |  |  |  |  |  |
| **Urban Stormwater and Other sources** |
|  |  | 2 | 2 |  | 2 |
| **Wastewater Treatment** |
|  |  |  | 3 | 1 | 1 |

|  |
| --- |
| **Landowner Interest Survey****Le Sueur River Watershed, Freeborn Lake** |
| **Low Interest (1)** | **2** | **3** | **4** | **High Interest (5)** |
|  | Reducing Soil P (3)Livestock feed management (3) Forage and biomass planting ( 3) | Perennial Buffers (4)Controlled drainage (4)Recommended Fertilizer Rates (3)Nitrification inhibitors (3)Cover Crops (3)Conservation easements and land retirements (3)Sediment control basins (3)Wastewater treatment (3) | Placement and timing of fertilizer application (5)Two stage ditches (4)Terraces/grassed waterways (4)Constructed wetlands (3)Conservation tillage and residue management (3) |  |

BMPs listed had the majority number of votes

(\*) = Number of votes