

Benefits of a Nutrient Management Plan

A Nutrient Management Plan (NMP) is a living document outlining the planned use of nutrient sources — manure, legumes, organic wastes and commercial fertilizers — to supply plant essential nutrients on crop fields and pastures. NMPs are also used to evaluate the impact of field operations, including crop rotations and tillage practices, on potential soil erosion and surface water quality.

Writing and following an NMP often increases a farm's profitability through improved nutrient management and cropping system practices.

Most farms and agronomists use the free **SnapPlus** software program* to write NMPs.

Download at:
snapplus.wisc.edu

*University of Wisconsin-Madison Soil Science Department



A 2012 study of over 250 Wisconsin farms with NMPs found:

- ✓ **69% of farms saved money** with an NMP, with an average savings of approximately \$ 18/acre
- ✓ **65% of farms decreased nitrogen applications** by an average of 54 lbs N/acre
- ✓ **51% of farms decreased phosphorus applications** by an average 32 lbs P₂O₅/acre

With these nutrient reductions:

- ✓ **74% of farms cited no change in corn yield**
- ✓ **18% of farms cited increased corn yield**

Gensko, K.D. (2012). *Taking stock of voluntary nutrient management: Measuring and tracking change*. Journal of Soil and Water Conservation, 67(1): 51-58

IMPROVED NUTRIENT MANAGEMENT

Writing an NMP in SnapPlus allows farms to target applications of nutrients based on crop production goals.

SnapPlus nutrient management planning software automatically:

- ✓ **Calculates crop nutrient** need based upon University of Wisconsin recommendations, crop yield goals, soil test levels, crop rotation and previous nutrient use.
- ✓ **Accounts for nutrient availability from manure applications** based upon laboratory manure test results or University book values, as well as 1st, 2nd and 3rd year legume and manure nutrient credits, where appropriate.
- ✓ **Produces nutrient spreading maps** and identifies restricted and prohibited areas for nutrient applications according to state and local regulations.

By knowing which fields require nutrients and at what rates, farms can optimize their use of both on-farm nutrient sources and commercial fertilizers, potentially resulting in increased crop productivity and/or decreased farm input expenses.

All Wisconsin farms — regardless if they have livestock or not — should write and follow an NMP.

In 2019, approximately 37% of Wisconsin's 9 million crop acres had NMPs. Although many farms are required to have an NMP*, many farms write an NMP because it just makes good sense!

*Farms required to have an NMP include those: offered cost-share with an NMP being a condition of the agreement; participating in the Farmland Preservation Program; with a Wisconsin Pollutant Discharge Elimination System (WPDES) permit; regulated under a local ordinance for manure storage or livestock siting; or issued a Notice of Discharge for causing significant discharge.

An NMP identifies fields where water erosion is potentially reducing soil health and crop production.

Wisconsin farms are, on average, losing an estimated 1-3 tons of soil per acre per year in northern Wisconsin and 3-8 tons per acre per year in southern Wisconsin by water erosion.

Estimated replacement value of soil of \$ 20/ton = \$ 20 - \$ 160 loss/acre/year.

Robinson, D.A., et al. (2014). *On the value of soil resources in the context of natural capital and ecosystem service delivery*. Soil Science Society of America Journal, 78(3): 685-700

IMPROVED CROPPING SYSTEM PRACTICES

Writing an NMP in SnapPlus also provides field-by-field estimates of crop rotation and tillage impacts on key soil health indicators.

SnapPlus, on a field-by-field basis, automatically:

- ✓ Estimates soil loss from water erosion, allowing for the identification and alteration of cropping practices to promote long-term crop productivity, soil health and local water quality.
- ✓ Calculates a phosphorus index (PI), an estimate of phosphorus transport from a field to a nearby water body. Knowing a field's PI allows a farm to alter its cropping practices to maintain phosphorus in the field, reducing crop nutrient loss and improving surface water quality.
- ✓ Calculates a field's soil conditioning index (SCI), which predicts potential changes in soil organic matter due to crop management. Soil organic matter is key to soil health. Altering farming practices to increase a field's SCI can result in the long-term improvement of crop and soil productivity.

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Farmers can write their own NMP by completing a DATCP-approved training course once every four years. Contact your county land conservation department to inquire about available training courses.

wisconsinlandwater.org/files/pdf/WILandWaterDirectory.pdf

Farmers can also work with a certified nutrient management planner to develop an NMP. A listing of certified planners can be found at:

datcp.wi.gov/Documents/AvailableNMPlanners.xlsx

This publication is available from the Nutrient and Pest Management (NPM) Program: phone (608) 265-2660, email (npm@hort.wisc.edu), or visit our website: ipcm.wisc.edu

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