

Current and Future Nutrient Management BMPs

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Current NM

- Nutrient Management (Standard – Application change)
- Decision Agriculture
- Enhanced NM

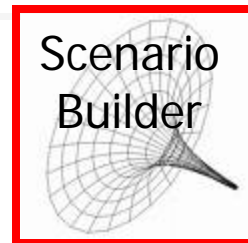
Nutrient Management

- Definition: Nutrient management plan (NMP) implementation (crop) is a comprehensive plan that describes the optimum use of nutrients to minimize nutrient loss while maintaining yield. A NMP details the type, rate, timing, and placement of nutrients for each crop. Soil, plant tissue, manure and/or sludge tests are used to assure optimal application rates. Plans should be revised every 2 to 3 years.
- Landuse: Hwm, hom, lwm, hyw, alf, pas
- Efficiency credited: Landuse change to nhi, nho, nlo, nhy, nal, npa, respectively
- Effectiveness estimate: N/A
- Reference: BMP Basics



Non-Point Source Practices

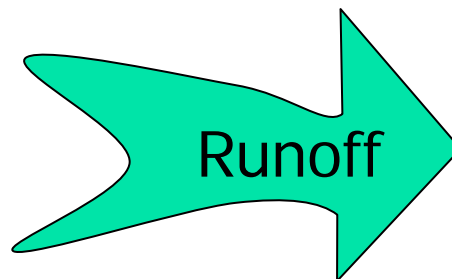
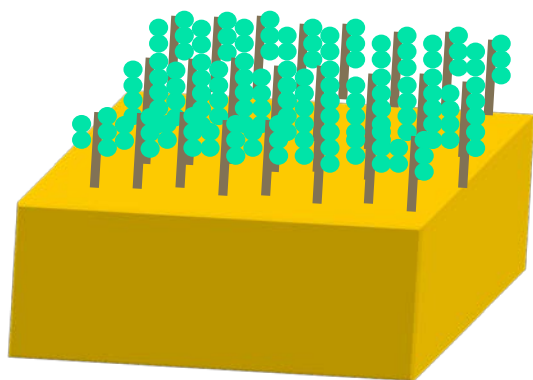
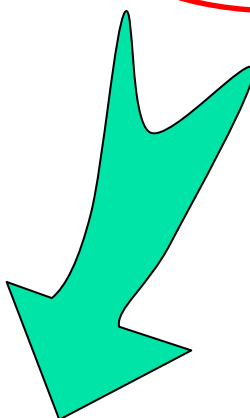
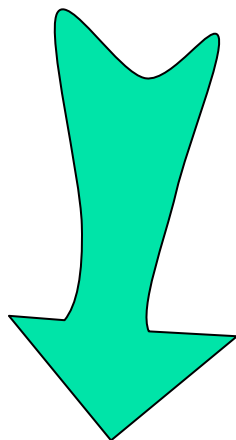
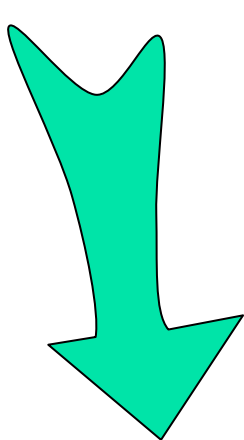
Nutrient Application Reductions



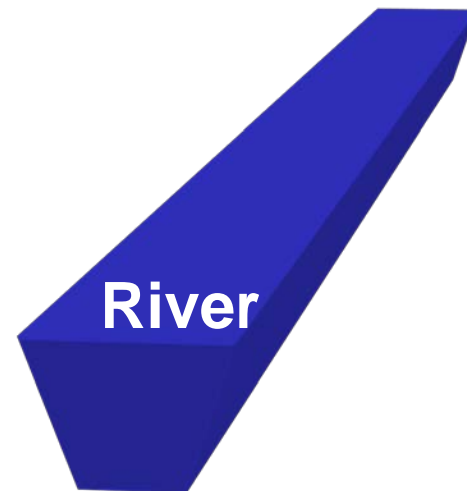
Atmosphere

Fertilizer

Manure



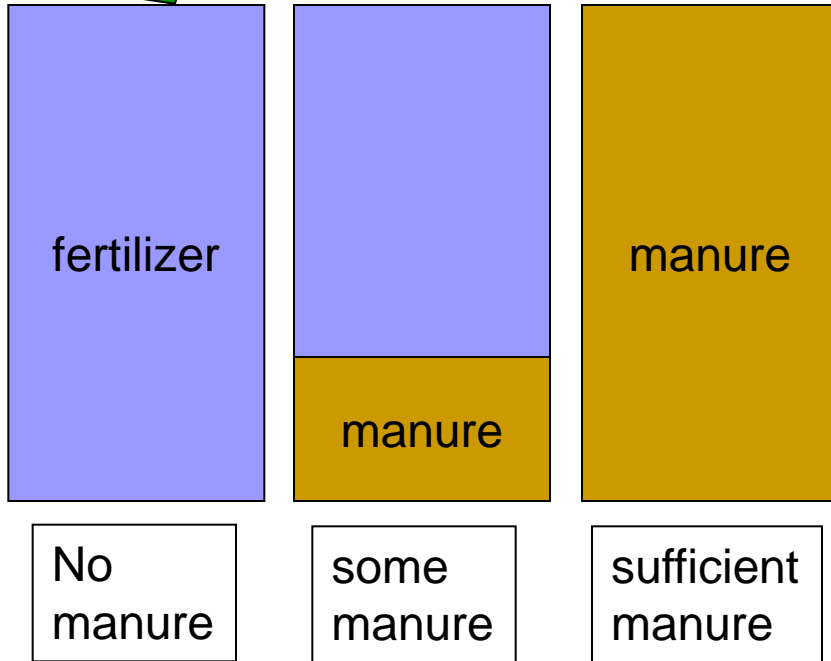
River



Fertilizer in non-NM – new P5.3.2

Nutrient management land use

Nutrient Management rate



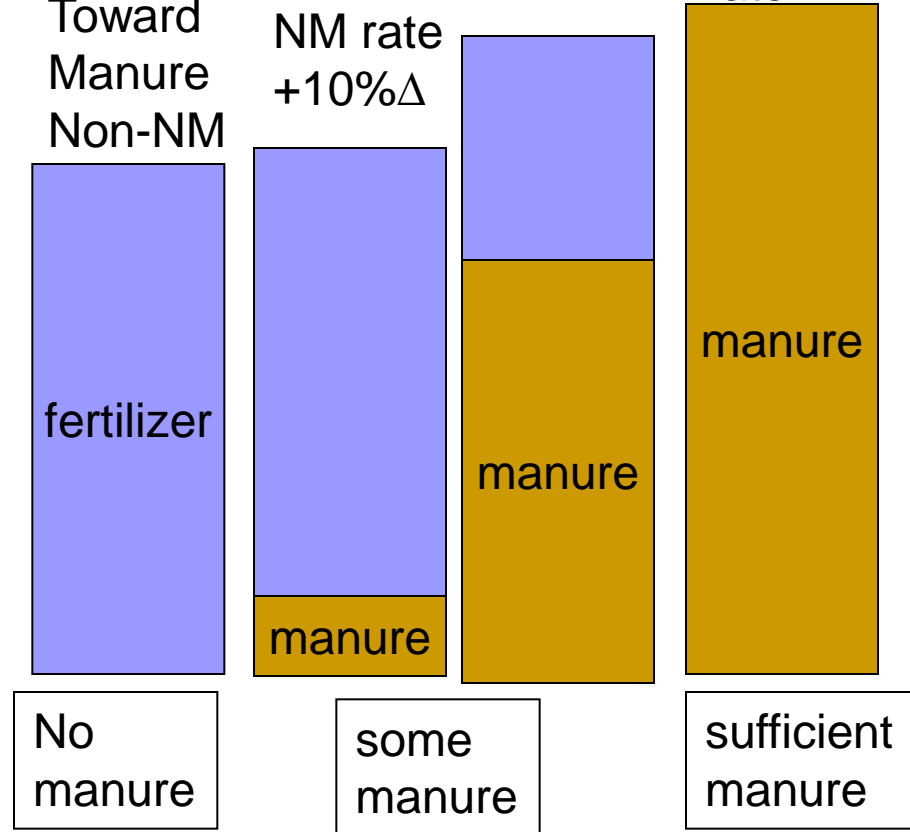
Non-Nutrient management land use

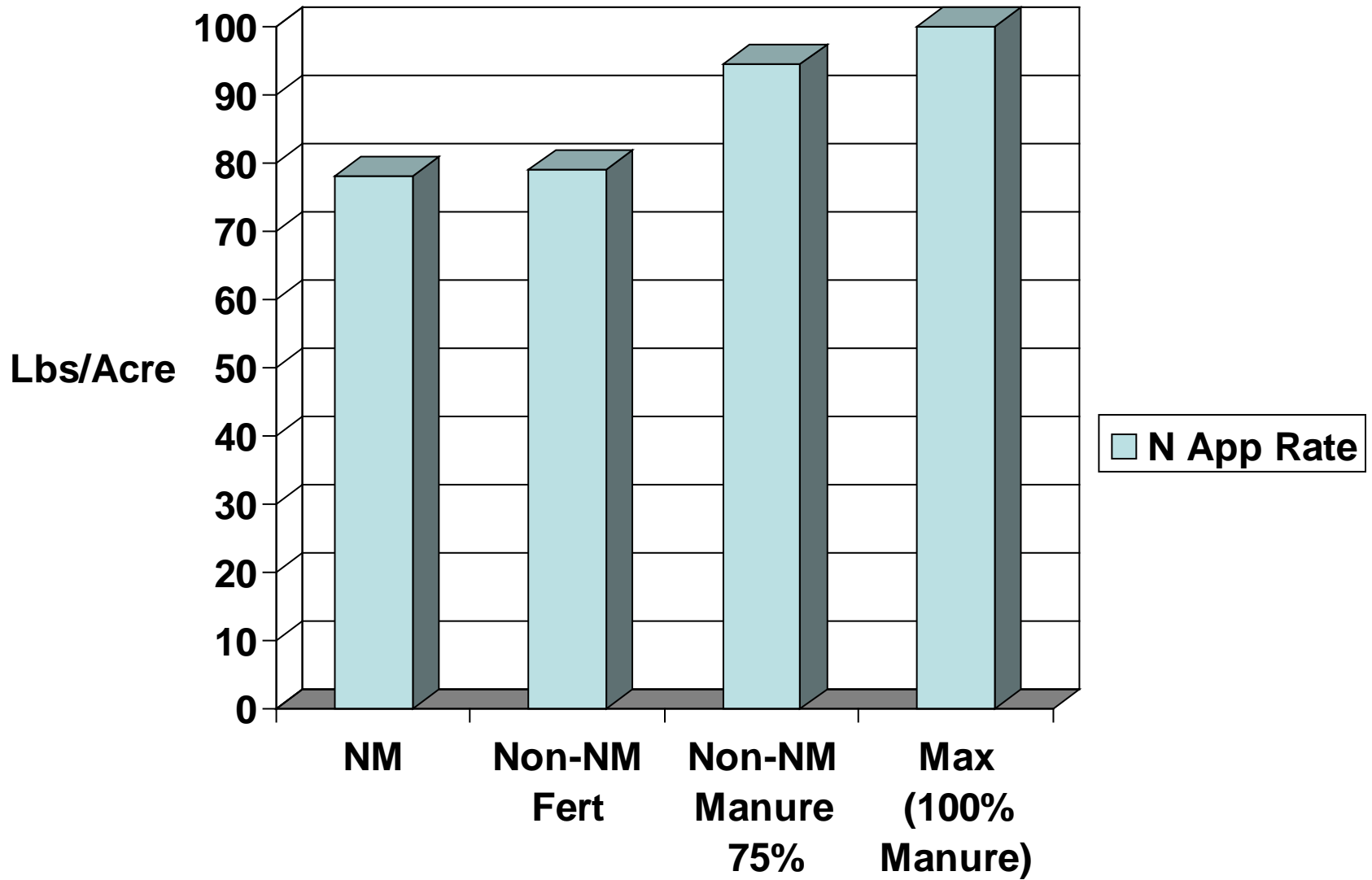
NM rate + 5% Δ Toward Manure Non-NM

Avg - 2007: NM rate +10% Δ

NM rate + 75% Δ

Manure Non-NM rate

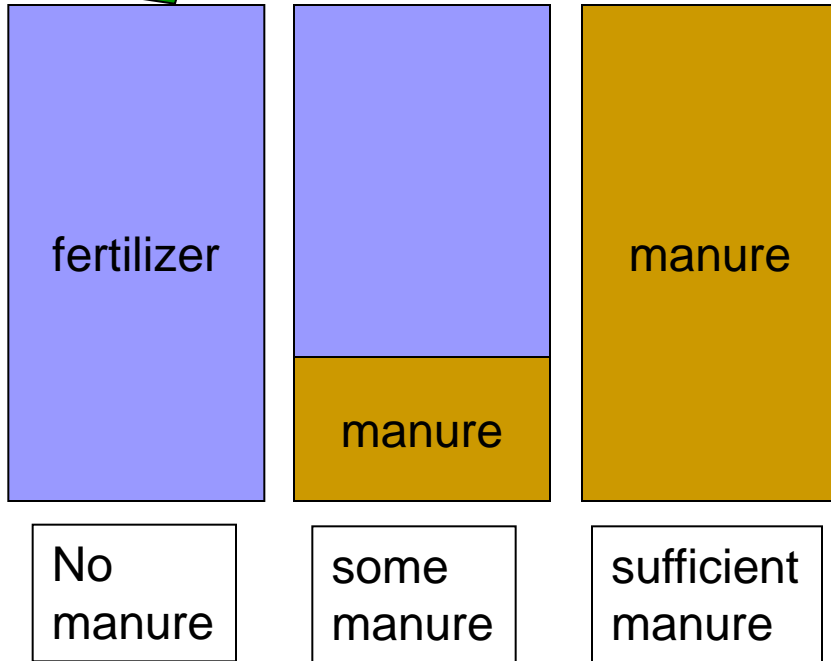




Fertilizer in non-NM – new P5.3.2

Nutrient management land use

Nutrient Management rate



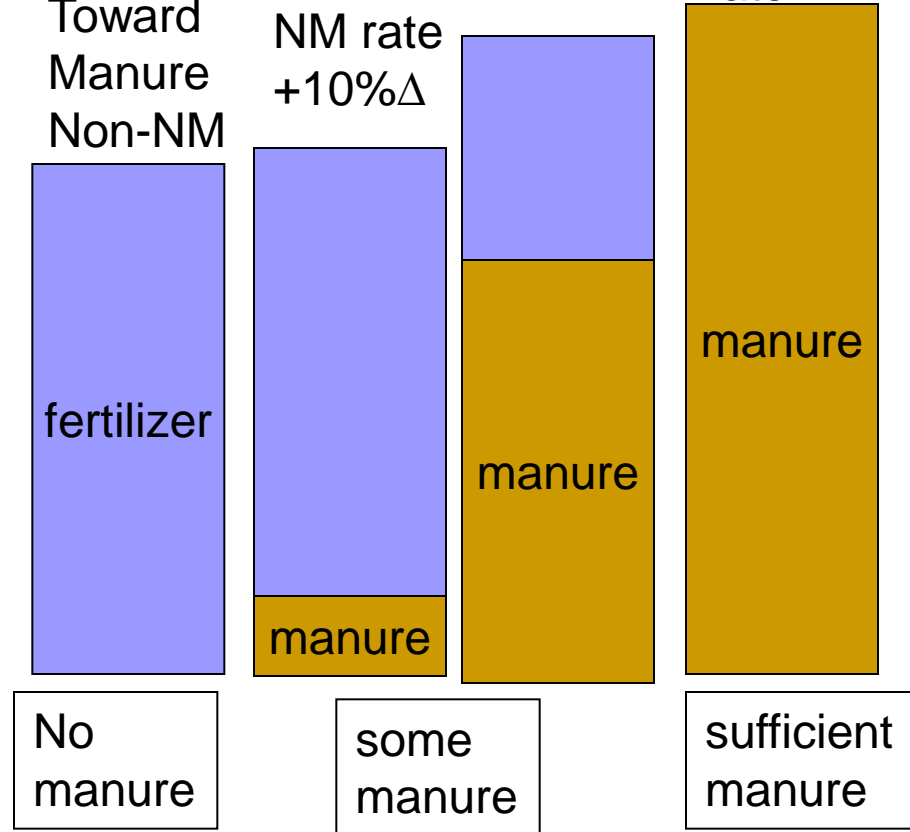
Non-Nutrient management land use

NM rate + 5% Δ Toward Manure Non-NM

Avg - 2007: NM rate +10% Δ

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Manure Non-NM rate



NM Problem

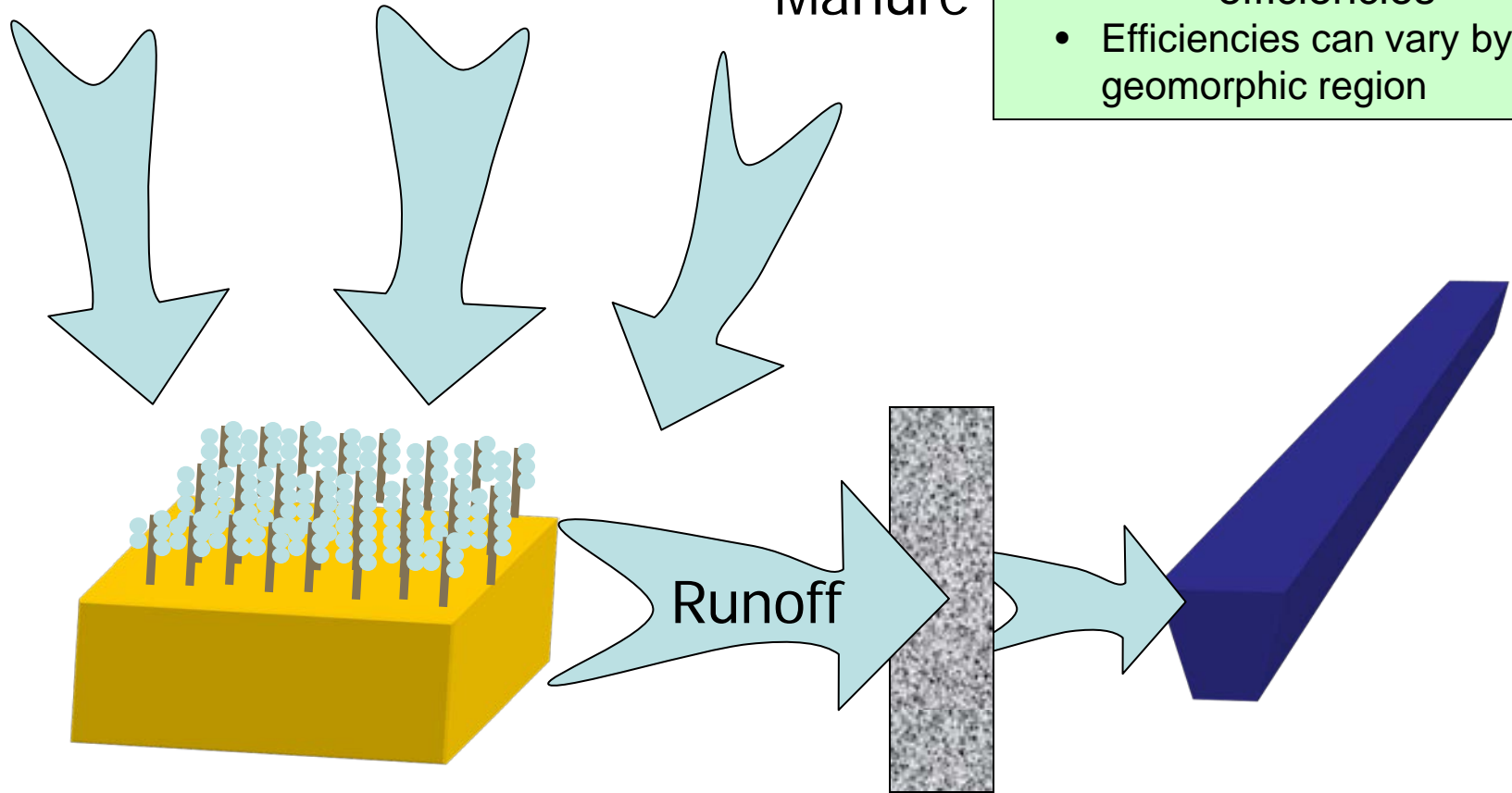
- The current data sets revealed some counties with high manure/biosolids load and very few NM acres
- In every scenario, organic sources must be placed on the land and in a few counties NM lands load higher than non-NM lands

Nutrient Application with Efficiency BMPs

Atmosphere

Fertilizer

Manure



Load reductions attributed to upland benefit employing “efficiencies”

- Efficiencies can vary by hydro-geomorphic region

Decision Agriculture

- Definition: A management system that is information and technology based, is site specific and uses one or more of the following sources of data: soils, crops, nutrients, pests, moisture, or yield for optimum profitability, sustainability, and protection of the environment.
- *Special Note: Many Phase 1 WIPs included this BMP as a placeholder for estimating the potential benefit from a nutrient management change in the SB V2.2 and P5.3.2 Watershed Model.*
- Landuse: Hom, hwm, hyw, lwm, alf
- Efficiency credited: Efficiency and landuse change to nutrient management equivalent
- Effectiveness estimate: TN: 4% is applied after landuse change
- Reference: NRCS practice Precision Ag

Enhanced Nutrient Management

- Definition: Based on research, the nutrient management rates of nitrogen application are set approximately 35% higher than what a crop needs to ensure nitrogen availability under optimal growing conditions. In a yield reserve program using enhanced nutrient management, the farmer would reduce the nitrogen application rate by 15%. An incentive or crop insurance is used to cover the risk of yield loss. This BMP effectiveness estimate is based on a reduction in nitrogen loss resulting from nutrient application to cropland 15% lower than the nutrient management recommendation. The effectiveness estimate is based on conservativeness and data from a program run by American Farmland Trust.
- *Special Note: Many Phase 1 WIPs included this BMP as a placeholder for estimating the potential benefit from a nutrient management change in the SB V2.2 and P5.3.2 Watershed Model.*
- Landuse: Hom, hwm, hyw, lwm, alf
- Efficiency credited: Efficiency and landuse change to nutrient management equivalent
- Effectiveness estimate: TN: 7% is applied after landuse change
- Reference: MAWP

Future NM

- Expert Panel convened and tasked
 - Interim P5.3.2 retool
 - P6.0 “novel” approach
- Definitions under development for 3 tiers
 - Basic, 590 Standard, Extra Credit
- Goals for completion
 - Interim recc’n approved by September ‘13
 - Final recc’n approved by December ‘13