High Hay and Pasture Supplemental Nutrient Management efficiencies

Tom Butler, EPA

2/13/2026

Background

Pasture and Hay in Phase 6 did not have creditable Nutrient Management (NM)

The Phase 7 versions, High Hay and Pasture, are now eligible to receive credit

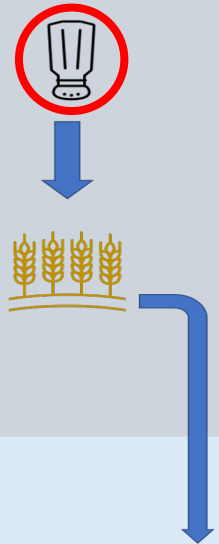
It was never discussed how supplemental practices, Rate, Placement, and Timing should be implemented

We have proposed efficiency reduction values for supplemental practices on these new High Hay and Pasture Land Uses

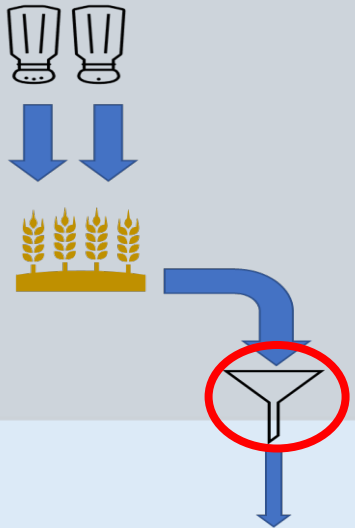
The Best Management Practices (BMPs) of Nutrient Management

- BMPs reduce the amount of pollution

Load Source Input Reduction



Efficiency Value



Defining nutrient management (NM)

For reference, please see expert panel recommendations for CAST BMPs

The Best Management Practices (BMPs) of Nutrient Management

Load Source Input Reduction	Increase application rate in non nutrient management areas
Efficiency Value	Percent of pollutant reduction given to acres where BMP is implemented

Denotes newly created Land Use

A look at efficiency values

	Placement		Rate		Timing	
Load Source	Nitrogen	Phosphorus	Nitrogen	Phosphorus	Nitrogen	Phosphorus
Double Cropped Land	3.00	10.00	5.00	5.00	10.00	1.00
Full Season Soybeans	-	10.00	-	5.00	-	1.00
Grain with Manure	5.00	20.00	15.00	10.00	10.00	20.00
Grain without Manure	3.00	10.00	5.00	5.00	5.00	1.00
Other Agronomic Crops	3.00	10.00	5.00	5.00	5.00	1.00
Silage with Manure	5.00	20.00	15.00	10.00	10.00	20.00
Silage without Manure	3.00	10.00	5.00	5.00	5.00	1.00
Small Grains and Grains	3.00	10.00	5.00	5.00	10.00	1.00
Specialty Crop High	5.00	10.00	15.00	5.00	5.00	1.00
Specialty Crop Low	3.00	10.00	5.00	5.00	5.00	1.00
Leguminous Hay	-	10.00	-	1.00	-	1.00
Hay Low	3.00	10.00	-	-	5.00	1.00
Hay High	?	?	?	?	?	?
Pasture Low	-	-	-	-	-	-
Pasture High	?	?	?	?	?	?

★ Denotes newly created Land Use

Newly proposed efficiency values

	Placement		Rate		Timing	
Load Source	Nitrogen	Phosphorus	Nitrogen	Phosphorus	Nitrogen	Phosphorus
Double Cropped Land	3.00	10.00	5.00	5.00	10.00	1.00
Full Season Soybeans	-	10.00	-	5.00	-	1.00
Grain with Manure	5.00	20.00	15.00	10.00	10.00	20.00
Grain without Manure	3.00	10.00	5.00	5.00	5.00	1.00
Other Agronomic Crops	3.00	10.00	5.00	5.00	5.00	1.00
Silage with Manure	5.00	20.00	15.00	10.00	10.00	20.00
Silage without Manure	3.00	10.00	5.00	5.00	5.00	1.00
Small Grains and Grains	3.00	10.00	5.00	5.00	10.00	1.00
Specialty Crop High	5.00	10.00	15.00	5.00	5.00	1.00
Specialty Crop Low	3.00	10.00	5.00	5.00	5.00	1.00
Leguminous Hay	-	10.00	-	1.00	-	1.00
Hay Low	3.00	10.00	-	-	5.00	1.00
Hay High ★	5.00	10.00	15.00	5.00	5.00	1.00
Pasture Low	-	-	-	-	-	-
Pasture High ★	3.00	10.00	5.00	5.00	5.00	1.00

How did we get here?

- Hay High
  - Existing Hay Land Use has supplemental NM
  - Starting values for Hay Low were similar to Specialty Low
    - Extended relationship between Specialty Low vs Specialty High to Hay Low vs Hay High
    - Consistent with other decisions on this topic
- Pasture High
  - NO supplemental NM on existing Pasture Land Use
  - Looked for the closest perennial crop systems in CAST

Pasture High continued

- Perennial systems

Crop Name	Load Source
peas - green southern (cowpeas)	Specialty Crop Low
aquatic plants	Specialty Crop Low
nursery stock	Specialty Crop Low
berries - all	Specialty Crop Low
short-rotation woody crops	Specialty Crop Low
snap beans	Specialty Crop Low
sunflower seed - oil varieties	Specialty Crop Low
green lima beans	Specialty Crop Low
sunflower seed - non-oil varieties	Specialty Crop Low
asparagus	Specialty Crop Low
land in orchards	Specialty Crop Low
peas - chinese (sugar and snow)	Specialty Crop Low
peas - green (excluding southern)	Specialty Crop Low
cut christmas trees production	Specialty Crop Low

Questions?

Decision:

- We should adopt the following supplemental NM efficiencies:

	Placement		Rate		Timing	
Load Source	N	P	N	P	N	P
Hay High	5.00	10.00	15.00	5.00	5.00	1.00
Pasture High	3.00	10.00	5.00	5.00	5.00	1.00