

Water Quality Enhancement Activity – WQL06 – Apply controlled release nitrogen fertilizer



Enhancement Description

All pre-emergent and early post emergent nitrogen fertilizer; except for a small amount starter nitrogen fertilizer (less than 10 lbs/ac of N + K₂O) applied at planting, must be slow-release or controlled release formulations.

Land Use Applicability

Cropland and pastureland.

Benefits

Nutrient management encompasses managing the amount, source, placement, and timing of the

application of plant nutrients and soil amendments. Nutrient management effectively utilizes available nutrient resources to supply crops with nutrients required to efficiently produce food, forage, fiber, and cover while minimizing environmental degradation.

The use of slow or controlled release nitrogen fertilizer makes nitrogen available to plants over a longer portion of the growing season to match the plant uptake needs. This limits the loss of nitrogen to leaching and denitrification, and can help control soil emissions of the greenhouse gas nitrous oxide.

Criteria

Implementation of this enhancement requires:

1. The use of one or more nitrogen fertilizer products defined as slow-release or controlled-release that are recommended or concurred with by NRCS and the state Land Grant University (LGU) on all treatment acres.
2. Application of nutrients within the LGU recommendations based on soil testing and established yield goals and considering all nutrient sources.
3. Minimize soil surface disturbance during nitrogen placement.
4. A small amount (less than 10 lbs/ac of N + K₂O) of nitrogen fertilizer (not treated as controlled released nitrogen) may be applied as a starter at planting time.

Documentation Requirements

1. A map showing where the activities are applied.
2. Fertilizer product used
3. Treatment acres
4. Soil test results
5. Crops grown and yields (both yield goals and measured yield)



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6. Calibration of fertilizer application equipment
7. Nutrient application rates/amounts and application dates for each treatment area



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Reference: 590 – Nutrient Management

Controlled- and Slow-Release Nitrogen Fertilizer Products	
Slow-Release	Controlled-Release
Urea-formaldehyde or methylene urea formulations e.g. Nitamin, CoRoN, Nutralene, Nitroform	Polymer-coated urea. E.g. Trikote, Polyon, Duration, ESN
Sulfur-coated urea	
IBDU (isobutylidene diurea) e.g. NuGro	

PLEASE NOTE:

1. Because of their cost, most slow-release and some controlled release N fertilizers have been developed and are used primarily for turf production or horticulture.
2. The University of Minnesota has evaluated Poly-coated urea (PCU) for use in corn and potato production and is evaluating its use in wheat production.
 - Use on corn ground for spring pre-plant applications is recognized in Minnesota’s N-BMP documents for South-Central and South-Eastern Minnesota with the caveat that use may be economically risky in years where environmental factors have already reduced N loss potential.
 - May not significantly reduce N loss potential if used pre-plant to replace in-season applications
 - Fall application of PCU is not an enhancement option for producers who currently fall apply anhydrous or who currently apply N spring pre-plant or in-season.
 - Fall applied PCU without incorporation can result in the PCU moving off the field in snowmelt runoff events.
 - Product efficacy for controlling N loss and increasing net income varies by crop, area of the state, site; climatic conditions and application timing.
3. Total nutrient application rates shall be consistent with University of Minnesota or contiguous land grant university recommendations.

<http://www.extension.umn.edu/CommodityCrops/>
<http://www.extension.umn.edu/distribution/cropsystems/DC5886.html>

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