



United States Department of Agriculture
Natural Resources Conservation Service

Water Quality Enhancement Activity – WQL06 – Apply Controlled Release Nitrogen Fertilizer



Enhancement Name

Apply only slow-release or controlled release formulations of nitrogen fertilizer

Land Use Applicability

This enhancement is applicable on cropland and pasture land.

Benefits

Nutrient management encompasses managing the amount, source, placement, form, 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.

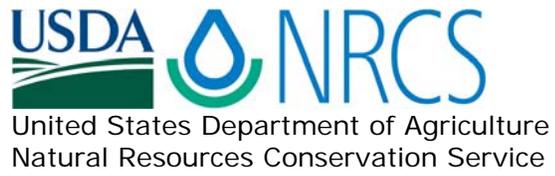
Criteria

Implementation of this enhancement requires:

- 1) The use of one or more of the following nitrogen fertilizer products on all treatment acres:
 - Slow-release
 - Controlled release
- 2) The producer must have a current soil test (no more than 3 years old).
- 3) Nutrient application rates are within the “Land Grant University (LGU) recommendations based on soil testing and established yield goals and considering all nutrient sources.
- 4) Soil surface disturbance must be minimized during nitrogen placement.

Documentation Requirements

- 1) Documentation for each Treatment area (field) and year of this enhancement describing these items:
 - Fertilizer product used
 - Treatment acres
 - Soil test results
 - Crops grown and yields (both yield goals and measured yield)
 - Calibration of fertilizer application equipment



- Nutrient application rates/amounts and application dates for each treatment area
- 2) A map showing where the activities are applied.



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Additional guidance for controlled release nitrogen fertilizer:

Slow release or controlled release formulations of nitrogen fertilizer can better match nitrogen availability to plant growth needs over the season, and reduces potential for loss.

The following table identifies acceptable chemical and organic slow release fertilizer products.

Chemistry of Chemical and Organic Slow Release Fertilizer Products ^{1,2}

Fertilizer Source	Common Abbreviation	Molecular Form	N %	P ₂ O ₅ %	K ₂ O %	S %	Physical State
Reacted Chemical Fertilizers							
Urea formaldehyde	UF	CO(NH ₂) ₂ • additive	38	0	0	0	Pellets
Isobutylidene-diurea	IBDU	Urea, N, N ₁ (2-Methylpropylidene) bis	31	0	0	0	Pellets
Coated Products							
Sulfur Coated Urea	SCU	CO(NH ₂) ₂ • S	39	0	0	12	Pellets
Poly Coated Urea	PCU	CO(NH ₂) ₂ • polymer	41-44	0	0	0	Pellets)
Poly Coated Urea	PCU	CO(NH ₂) ₂ • polymer	41-44	0	0	0	Pellets)
Natural Organic Products							
	C/N Ratio	Lb-N/ton	N %	P ₂ O ₅ %	K ₂ O %	-	Release Rate
Feather Meal	4	200	10	0	0	-	Medium
Bean Meal	7	120	6	1	2	-	Medium
Cottonseed Meal	7	120	9	2	2	-	Slow
Crab Meal	4	100	5	2	0.5	-	Medium
Poultry Manure Compost	15	80	3	4	3	-	Slow
Alfalfa Meal	15	50	3	0.5	3	-	Medium

Legume Hay	16	40	2	0.5	2	-	Medium
Grass Hay	32	30	1.5	0.5	1.75	-	Medium
Finished "Field" Compost	17	20	1	1	1	-	Slow
Spring Beef Manure	15	7	0.35	0.45	0.7		Medium
Fall Dairy Manure	18	6	0.3	0.75	1.8		Slow
Fall Beef Manure	18	6	0.3	0.75	1.8		Slow
Spring Dairy Manure	15	3	0.15	0.12 5	0.2		Medium

¹ Sartain, J. B., Food for turf: Slow-release nitrogen, University of Florida

² Washington State Department of Agriculture (WSDA) Fertilizer Product Database