



**CONSERVATION ENHANCEMENT ACTIVITY**  
**E590C**

**CONSERVATION**  
**STEWARDSHIP**  
**PROGRAM**

Improving nutrient uptake efficiency and reducing risk of nutrient losses on pasture

**Conservation Practice 590: Nutrient Management**

**APPLICABLE LAND USE: Pasture**

**RESOURCE CONCERN: Water**

**ENHANCEMENT LIFE SPAN: 1 year**

**Enhancement Description**

Nutrient management encompasses managing the amount, source, placement, and timing of the application of plant nutrients and soil amendments. Nutrients are currently being applied on the farm based on the 4R nutrient stewardship principles. Enhanced nutrient use efficiency strategies or technologies are utilized to improve nutrient use efficiency and reduce risk of nutrient losses on pasture.

**Criteria**

- Documentation of producer’s record of nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- For nitrogen (N), phosphorus (P), and potassium (K), plan application rates using land grant university (LGU) recommendations or industry practices when recognized by the LGU. Lower-than-recommended nutrient application rates are permissible if the client’s objectives are met.
- Geo-referenced map of all current and planned hay feeding areas, watering facilities, shelters, or other potential areas of animal concentration.

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- Minimize soil surface disturbance during fertilizer placement.
- **Utilize two or more nutrient use efficiency strategies or technologies** to reduce nutrient loss risk and improve nutrient use efficiency. Select two or more of the strategies and technologies below:
  - Split nutrient applications.
    - Apply no more than 50% of total forage N needs before green up of dormant grasses. Apply the remaining N after green up.
    - Additional nitrogen applications may be reduced or eliminated based on forage scouting, in-season soil sampling/analysis, or plant tissue sampling/analysis.
  - Nutrient application placement below soil surface.
    - Nutrients are injected or incorporated using a minimal soil disturbance method at time of application.
  - Use variable rate technology for all nutrient applications. Variable rate technology may be map-based, sensor-based (crop canopy sensors), or manual. Requires the development of site-specific production maps using soils data, current soil test results, or a productivity monitoring system with GPS to correlate field location with productivity. Data is used to diagnose low, medium, and high productivity areas (pasture management zones).
  - Movement of hay feeding locations to distribute nutrients across the pasture(s) to avoid areas of nutrient concentration and sensitive areas. Develop a detailed hay feed movement plan, which includes soil sampling of the historic/current hay feeding areas and planned areas to assess status of soil nutrients. Monitoring required through annual soil sampling, geo-references photographs, and written records.
  - Adjust pH to the optimum level for legumes and forages. Apply soil amendments to adjust soil pH according to soil test recommendations. Monitoring required through



annual soil sampling. *This option is only applicable on fields with documented need and having existing stands of forage species that do not need re-establishment.*

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### Documentation and Implementation Requirements

Participant will:

- Prior to implementation, provide documentation for review by NRCS showing a record of implementing nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- Prior to implementation, develop and document a planned nutrient budget, forage production goal, and applications (pounds/acre active ingredient, nutrients must include at a minimum N-P-K). *If variable rate technology will be used develop site-specific yield maps and use them to develop management zones within the pasture.*
- Prior to implementation, develop geo-referenced maps showing location of current areas of livestock concentration.
- Prior to implementation, select two or more of the nutrient use efficiency strategies or technologies. **Selections:** \_\_\_\_\_
- During implementation, keep records to document actual nutrient applications (pounds/acre active ingredient, nutrients must include at a minimum N-P-K).
- During implementation, minimize soil surface disturbance during fertilizer placement.
- During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- During implementation, additional record keeping requirements for specific strategy or technology:
  - Nutrient application placement below soil surface. Records and documentation must include method of injection or incorporation and depth.

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- Variable rate technology. Keep records to document as applied records of actual variable rate applications (maps and/or tabular statistics).
- Monitoring of hay feeding location movement. Maintain annual soil sample results, geo-references photographs, and written records.
- Adjust pH. Maintain soil test results.
- After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Nutrient Management (CPS 590) as it relates to implementing this enhancement.
- Prior to implementation, review documentation to verify a record of implementing nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- Prior to implementation, verify the development of a planned nutrient budget, yield goal, and planned nutrient applications. *If variable rate technology will be used, verify the development of site-specific yield maps used to develop management zones within the field.*
- Prior to implementation, verify the selection of two or more nutrient use efficiency strategies or technologies.
- During implementation, evaluate any planned changes to verify the planned system meets the enhancement criteria.
- After implementation, review documentation and records to verify implementation of the enhancement.

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**NRCS Documentation Review:**

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



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**IOWA SUPPLEMENT TO  
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**Additional Criteria for Iowa**

- For nitrogen (N), phosphorus (P) and potassium (K) recommendations use Iowa State University (ISU) publication [PM869 Fertilizing Pasture](#).
- For pH adjustments use ISU publication [PM1688 A General Guide for Crop Nutrient and Limestone Recommendations in Iowa](#).
- The split nutrient applications strategy, can only be used if pastures are less than 30% legumes by dry weight.
  - If using split nutrient application on introduced pastures, follow ISU publication [PM869 Fertilizing Pasture](#) for Kentucky bluegrass or tall cool-season grass pastures.
  - If using split nutrient application on warm season grass pastures, apply 40-50 pounds of N in early-mid May and 40-50 pounds of N in early July.
- The applications below the soil surface strategy required for N, P, and K. Inject fertilizer on spacings of 30 inches or less.
- For Variable Rate Technology for all nutrient application strategy, since a yield monitoring system is not realistic in pastures, use soils data and current soil test results to develop nutrient prescriptions.