



CONSERVATION ENHANCEMENT ACTIVITY  
**E590119Z**

CONSERVATION  
**STEWARDSHIP**  
PROGRAM

Improving nutrient uptake efficiency and  
reducing risk of nutrient losses to groundwater

**Conservation Practice 590: Nutrient Management**

**APPLICABLE LAND USE: Crop (annual & mixed); Crop (perennial)**

**RESOURCE CONCERN ADDRESSED: Water Quality Degradation**

**PRACTICE 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.

**Criteria**

- Documentation of producer's record of nutrient management meeting all Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- For Nitrogen, Phosphorus, and Potassium (N-P-K), rates of application are to be agronomic application rate (based on soil test and yield goal).
- 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:



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- Use Enhanced Efficiency Fertilizer (EEF) products with 1 or more nutrient applications.
  - Nitrogen or phosphorous EEF products recommended by state Land Grant University (LGU) and concurred with by NRCS on all treatment acres to supply at least 50% of the pre-emergent and early post emergent LGU recommended nitrogen or phosphorous requirements for the crop(s) grown.
  - Use in-season soil nitrate sampling.
  - Use pre-sidedress soil nitrate test (PSNT) to determine the need and/or amount of additional nitrogen to be applied during sidedress/topdress N application. Conduct a PSNT on a selected crop (e.g. corn) to test if additional N fertilizer is needed.
- Use in-season plant tissue sampling and analysis as a complement to soil testing.
  - Follow local LGU and/or laboratory guidelines for interpretations of the results and appropriate adjustments in the application of N and other nutrients.
- Split nutrient applications.
  - Apply no more than 50% of total crop nitrogen needs within 30 days prior to planting (or in the case of hay or pasture after green up of dormant grasses). Apply the remaining nitrogen after crop emergence (or green up).
  - Post emergent nitrogen may be reduced based on crop scouting, in-season soil sampling/analysis, or plant tissue sampling/analysis.
- Time nutrient application timing to match nutrient uptake timing.
  - Apply nutrients no more than 30 days prior to planting date of annual crops.
- Nutrient application placement below soil surface.
  - Fertilizer is injected or incorporated at time of application.



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### Documentation Requirements

- Documentation of nutrient management records meeting all Nutrient Management, CPS 590, general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- Planned nutrient budget, yield goal, and applications (pounds/acre active ingredient nutrients, must include at a minimum N-P-K)
- Actual Applications (pounds/acre active ingredient nutrients, must include at a minimum N-P-K)
- Additional Requirements for specific strategy or technology:
  - In-season soil nitrate sampling. Required documentation must include results (including reference strips) and adjustments in nutrient management based on results.
  - In-season plant tissue sampling and analysis. Required documentation must include type of test used (stalk, leaf, chlorophyll, infrared, or other plant tissue), results (including reference strips), and adjustments in nutrient management based on results.
  - Nutrient application placement below soil surface. Required documentation must include method of injection or incorporation and depth.