



CONSERVATION ENHANCEMENT ACTIVITY

E590D

**CONSERVATION
STEWARDSHIP
PROGRAM**

Reduce risks of nutrient losses to surface and groundwater by increasing setback awareness via precision technology

Conservation Practice 590: Nutrient Management

APPLICABLE LAND USE: Crop (Annual and Mixed), Crop (Perennial)

RESOURCE CONCERN: Water

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Utilize precision technology to increase Surface/Groundwater Setbacks & Associated Application Rate Restrictions (SGS&AARR) implementation during nutrient application by providing precise, real-time location information (geo-located) in the field to the equipment operator. While operating nutrient application equipment, the operator’s location is continually updated and displayed on an integrated, in-cab or add-on GPS-enabled device visible to the operator at all times to reduce the risk of nutrient application in setback and/or sensitive areas. This allows the equipment operator to manually turn off or steer equipment to avoid applying nutrients in setback or sensitive areas. Done properly this helps to protect surface and ground water resources.

Criteria

- Implementation of this enhancement requires the use of components of precision agriculture technologies for nutrient management.
- Prior or current documentation of implementation of a nutrient management meeting all NRCS Conservation Practice (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- Documentation that all 590 surface/groundwater setbacks and associated

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application rate restrictions (SGS &AARR) are geolocated in a file format that is overlaid on a current air photo and/or field map and visually displayed for the nutrient applicator. SGS&AARR includes, but are not limited to, state specific 590 surface/groundwater setbacks and sensitive areas including soils and bedrock restrictions.

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- Photo or written documentation of:
 - Field verification of SGS&AARR,
 - Creation of updated maps in a format compatible with the system on application equipment, and annual updating if new SGS&AARR are documented,
 - Equipment installation and testing to ensure fully functional system, and
 - Implementation of the system with each nutrient application.
- Subject to payment limitations, this enhancement will apply to all cropland acres operated by the producer meeting CSP 590.



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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 (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- Prior to implementation, a Qualified Individual will create an electronic file(s) with 590 criteria geolocated, compatible with all nutrient application equipment used on the farm and ensure compatibility with all equipment used. The Qualified Individual will provide copies, training, and operating instructions to all operators prior to nutrient application.
- Prior to implementation, the Qualified Individual will quality review all electronic files, and provide documentation for review to NRCS showing the system to be used by the equipment operator and electronic copies of site specific, field verified 590 maps including all SGS&AARR in a format readable by NRCS (KML files, shapefiles, or other mutually agreed upon format) via NRCS State Office designated delivery method.
- Prior to implementation, existing maps are reviewed, SGS&AARR are geolocated an in-field assessment for previously unmapped SGS&AARR is conducted and all maps updated and approved by a Qualified Individual to ensure all 590 criteria are documented and accurate.
- Prior to implementation, provide documentation of nutrient application equipment calibration.
- Prior to implementation, provide documentation to NRCS documenting the installation of equipment on tractors/equipment using a dedicated, fuse protected, power source or a factory installed power source, documentation of maps loaded onto devices, and documentation that system is fully functional and operational.

Prior to initial implementation (one time)

Verification of purchase/usage of tablet/display system with internal/connected GPS receiver	Verification of purchase/usage of tablet/display system with minimum screen brightness of 450 NITS	Verification of installation/usage of tablet/display system with a dedicated, fuse protected, power source or a factory installed power source.

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Prior to initial implementation (one time, or when additional SGS/AARR are documented)

Field	Acres	Verification of current CPS 590 implementation by NRCS	Verification of calibration of nutrient application equipment by Qualified Individual	Verification of electronic maps and equipment compatibility by Qualified Individual

Prior to initial implementation (one time, or when additional SGS/AARR are documented)

Field	Acres	Verification that the Qualified Individual has conducted an in-field assessment, geolocated all SGS&AARR in a compatible format and provided copies to NRCS	Verification of installation and functionality on all nutrient application equipment by Qualified Individual	Verification that the Qualified Individual has trained all equipment operators

- During implementation, keep records to document as applied records of nutrient applications (maps, photo documentation and/or tabular statistics).
- During implementation, update all electronic files when additional SGS&AARR are documented. Updated copies must be provided to NRCS annually.



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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 site-specific geo-located maps. For each field, all SGS&AARR will be documented by the Qualified Individual via geo-location and included in the electronic file. NRCS staff will review to ensure that known site specific soils information and known sensitive area resource concerns are included.
- Prior to implementation, verify the development of a planned nutrient budget, yield goal, and planned nutrient applications by management zone.
- 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.

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

North Dakota sideboards:

A Qualified Individual (QI) for the purpose of this enhancement is a credentialed agronomist, soil scientist, or Technical Service Provider who has demonstrated proficiency in applying the NRCS 590 nutrient management standard, the ability to create digitized, georeferenced maps with setbacks, and the ability to assist the producer/equipment operator with the set-up and operation of the precision equipment used for application and record keeping.

The NRCS Field office must receive electronic copies (maps) with setbacks prior to nutrient application and concur with setback locations and sizes. Fields requiring no setback are not eligible for the enhancement.

Rarely used in North Dakota