USDA United States Department of Agriculture

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 & Mixed); Crop (Perennial)

RESOURCE CONCERN: Water

ENHANCEMENT LIFE SPAN: 1 years

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 application rate restrictions (SGS&AARR) are geolocated in a file format that is

overlaid on a current air photo and/or field map, 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.

- 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
  - 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. Documentation and Implementation Requirements

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 (CPS590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.

☐ Prior to implementation, a registered 590 Technical Service Provider (TSP) will create an electronic file(s) with 590 criteria geo-located, compatible with all nutrient application equipment used on the farm and ensure compatibility with all equipment used. TSP will provide copies, training, and operating instructions to all operators prior to nutrient application.

☐ Prior to implementation, the TSP 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 certified 590 TSP 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.

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

Field	Acres	Verification of current CPS 590 implementation by TSP	Verification of calibration of nutrient application equipment	Verification of TSP creation of electronic maps and equipment compatibility with maps

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

Field	Acres	Verification that TSP 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	Verification that TSP 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.

☐ During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.

Second and subsequent years

Field	Acres	Verification that any additional SGS&AARR have been added maps and all system components updated	Timing of nutrient application (type/date)	Timing of nutrient application (type/date)	Timing of nutrient application (type/date)	NRCS notified of any changes

- ☐ After implementation, Participant will provide required documentation to NRCS for review 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, NRCS will verify the TSP is certified for 590 Nutrient Management.
- ☐ 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 TSP 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