



## NATURAL RESOURCES CONSERVATION SERVICE: PRACTICE STANDARD 590 (NUTRIENT MANAGEMENT)

### 590 Definition

**Managing the amount (rate), source, placement (method of application), and timing of plant nutrients and soil amendments.**

### Background

NRCS practice standards are reviewed every five years. The national office reviews the standard and makes updates as necessary. The national office presented the revised 590 standard to the states about a year ago.

The national office required that NRCS work with local, state and federal agencies and other partners to adopt the standard at the state level.

NRCS held several sessions with partners in the state over the past year to gather comments and suggestions.

At the state level, NRCS can make the standard more restrictive than the national standard, but we cannot make it less restrictive.

### When is the Nutrient Management 590 Standard Used?

The 590 standard comes into play when a landowner wants to evaluate or treat a nutrient concern. NRCS offers incentive programs to implement conservation practices that involve nutrient management. NRCS is not a regulatory agency and landowners participate in programs voluntarily.

The standard addresses resource concerns and treats them to NRCS quality criteria based on science.

### New to Washington's 590 (2014)

The national standard has implemented a few changes to the suite of practices that are now required when applying the nutrient management

standard. Some of these changes include:

- *Landowners now have to manage ephemeral, gully, sheet, rill and wind erosion to protect soil and water quality.*
- *Organic operations will be required to manage nutrient sources according to the USDA's National Organic Program and certifying agency.*
- *When irrigation water is applied on a field that has nutrient sources, an Irrigation Water Management (IWM) Plan will be developed following current Washington practice standards.*
- *Sampling depths now MUST follow land grant university guidance with a minimum sampling depth of 12 inches when not defined otherwise for a particular crop by the land grant university. Note: NRCS has suggested 12 inches in the past, but it is now required.*
- *Fields receiving animal manures and/or biosolids must be monitored for the accumulation of heavy metals.*
- *Planned nutrient application rates for nitrogen, phosphorus and potassium must not exceed appropriate land grant university crop production guidelines based on realistic yield goals.*
- *A nitrogen and phosphorous risk assessment will be done on all sites. The risk assessment takes into consideration several elements including the type of soil in the field where nutrients are being applied. The goal is for applied nutrients to stay on the field. The index determines the risk level of nutrients leaving the field.*

# 590 Standard comparison based on year

## 590 Standard 2009

Nutrients shall not be applied to frozen, snow covered or saturated soil if the potential risk for runoff exists.

Areas contained within established minimum application setbacks shall not receive direct application of nutrients.

Recommended nutrient application rates shall be based on Land Grant University recommendations.

N, P, K planned application rates shall match the recommended rates as closely as possible (except when manure or organic by-products are a source of nutrients, see additional criteria).

Additional criteria applicable to manure, organic by-products or biosolids:

The application rate of liquid materials applied shall not exceed the soil intake/infiltration rate and shall be adjusted to minimize ponding and to avoid runoff. The total application shall not exceed the field capacity of the soil and shall be adjusted, as needed, to minimize loss to subsurface tile drains.

2009-Phosphorus applications are based on:

- Phosphorus Index (PI) Rating
- Soil Phosphorus Threshold Values (undefined)
- Soil Test Recommendation

## 590 Standard 2014

*Nutrients must not be surface-applied if nutrient losses offsite are likely. This precludes spreading on frozen and/or snow covered soils and when the top 2 inches of soil are saturated from the rainfall or snow melt. Winter application periods are from October 15 until T-Sum values reach 200. Applications of manure will not be made within the winter period.*

*Clarification: T-Sum 200 = Date when the sum of the mean daily air temperatures in degrees celsius from January 1 reaches a value of 200.*

*Areas contained within minimum application setbacks must receive nutrients consistent with the setback restrictions following national, state and local regulations.*

*Clarification: Setbacks from water bodies located within a nutrient application area will be addressed by local, county, state or national agency regulations. Since these are site specific, NRCS 590 standard will not address them.*

*Planned nutrient application rates for nitrogen, phosphorus and potassium **must not exceed** appropriate Land Grant University crop production guidelines.*

*Clarification: Original language in the standard stated that NRCS would use the land grant university's recommended planned application rates. Now the standard states that the application rates **must not exceed** the land grant university's recommendations.*

*The total single application of liquid manure:*

- *Must not exceed the soil's infiltration or water holding capacity*
- *Be based on crop rooting depth*
- *Must be adjusted to avoid runoff or loss to subsurface tile drains*

*Clarification: The amount of liquid manure applied to a field cannot exceed the soil's ability to absorb the liquid. The maximum amount allowed to be applied is based on the **depth of the crop's roots**. Basing this on root depth is a new addition.*

*2014-Phosphorus applications are based on:*

- *Phosphorus Index (PI) Rating*
- *Threshold values based on PI Rating ("Zero Out Threshold" West of Cascades (WoC) PI Rating  $\geq 82.5$ ; East of Cascades (EoC) PI Rating  $\geq 960$ )*
- *Land Grant University crop Production Guidelines*

*Clarification: The Phosphorus Index risk assessment previously included the categories low, medium, high and very high. Now, the risk assessment includes low, medium, high and **zero threshold**. If zero threshold is reached (if the maximum amount of phosphorous loss risk is exceeded) then no additional phosphorous can be applied to the field. If the assessment indicates a medium or high level, restrictions for these levels remain the same.*

*NRCS has historically recognized a different Phosphorous Index rating for the east and west side of the Cascades due to the differences in precipitation levels and how the precipitation is received.*

*The PI was developed through a joint project in 2001 between Oregon and Washington and jointly revised in 2013 to address new national requirements. It takes into account several factors including the type of soil, closeness to surface water, and hydrologic groups.*