



United States
Department of
Agriculture

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 and updated at the national level every five years. States must review and may supplement national standards to ensure they meet state and local criteria (regulations) that may be more restrictive than national criteria. States may adopt national level standards without supplements.

The national nutrient management practice (590) was reviewed and updated in 2012. NRCS Washington used a subcommittee to the State Technical Advisory Committee (STAC) to ensure that NRCS heard state level input for possible incorporation into the nutrient management practice.

When is the Nutrient Management 590 Standard Used?

A nutrient management plan developed for NRCS incentive programs is not the same as a dairy nutrient management plan. A nutrient management plan is used to manage the amount, source, placement and timing of plant nutrients and soil amendments to all lands where plant nutrients and soil amendments are applied. This includes small grains, row crop, orchards/vineyards, etc., farmed with conventional fertilizers as well as applied with manure and other organics.

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 must manage ephemeral, gully, sheet, rill and wind erosion to protect soil and water quality.*
- *On organic operations, the nutrient sources and management must be consistent with the USDA's National Organic Program (NOP) & certification agency.*
- *When irrigation water is applied on a field that has nutrient sources, an Irrigation Water Management (IWM) Plan will be developed following current NRCS 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 in accordance with land-grant university guidance and state law.*
- *Planned nutrient application rates for nitrogen, phosphorus and potassium must not exceed appropriate land grant university crop production guidelines based on realistic yield goals. Additional guidance applies to use of manures or organic by-products as nutrients.*
- *A nitrogen and phosphorus risk assessment will be done on all sites. 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).

2009-Phosphorus applications are based on:

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

The PI is found in Washington Water Quality Technical Note 2 (WQ TN-2) and was developed through a joint project in 2001 by a nutrient management advisory group comprised of members from the Natural Resources Conservation Service, Oregon State University, Washington State University, Conservation District representatives, Washington State Department of Ecology, agriculture industry representatives and agriculture producers.

It takes into account several factors including the type of soil, closeness to surface water, and hydrologic groups. NRCS has historically recognized a different PI rating for the east and west side of the Cascades due to the differences in precipitation levels and how the precipitation is received.

Heavy Metal Monitoring. When sewage sludge (biosolids) is applied, the accumulation of potential pollutants (including arsenic, cadmium, copper, lead, mercury, selenium, and zinc) in the soil shall be monitored in accordance with the US Code, Reference 40 CFR, Parts 403 and 503, and/or any applicable state and local laws or regulations.

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.

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. Additional guidance applies to use of manures or organic by-products as nutrients.

2014-Phosphorus applications are based on:

- *Phosphorus Index (PI) Rating*
- *Threshold values based on PI Rating*
- *Land Grant University crop production guidelines*

The PI Washington Water Quality Technical Note 2 (WQ TN-2) was revised in 2013 by the PI advisory group to represent 3 risk levels; low, moderate, high. The national requirement also included the inclusion of a zero-out threshold. The zero out threshold is based from the values calculated from using the PI WQ TN-2. This means as long as the zero-out threshold is exceeded, no additional phosphorus can be applied to the field and a draw-down strategy is implemented.

Fields receiving animal manures and/or biosolids must be monitored for the accumulation of heavy metals in accordance with land-grant university guidance and state law.

Clarification: At this time in most situations this excludes the monitoring for accumulation of heavy metals on land application of manures and crop residues at agronomic rates. Under authority of Department of Ecology, Biosolids are regulated in WAC Chapter 173-308, and composting facilities are regulated in WAC Chapter 173-350, for specific exemptions refer to WAC 173-35-220. Lands transitioning or certified organic need to follow rules under the USDA's NOP and their USDA-accredited certifier.