

Nutrient Management Plan

Criteria - Practice/Activity Code (104) (No.)

Modified for Soil Condition Cooperative Conservation Partnership Initiative (CCPI)

1. Definition

Nutrient management plans are documents of record of how nutrients will be managed for plant production. These plans are prepared in collaboration with producer and/or landowner and are designed to help the producer with implementation and maintenance activities associated with the plan.

A Nutrient Management conservation activity plan must:

1. Meet NRCS Quality Criteria for Soil Erosion, Soil Condition, Water Quality and Quantity, and other identified resource concerns;
2. Be developed in accordance with technical requirements of the NRCS Field Office Technical Guide (FOTG) and policy requirements of General Manual, Title 190, Part 402, Nutrient Management; and guidance contained in the National Agronomy Manual, Subpart 503C.
3. Comply with federal, state, tribal, and local laws, regulations and permit requirements; and
4. Satisfy the operator's objectives.

2. Nutrient Management Plan Technical Criteria

This section establishes the minimum criteria to be addressed in the development of Nutrient Management Plans.

A. General Criteria

The "CCPI Nutrient Management Plan" shall be developed by certified Technical Service Providers (TSPs). In accordance with Section 1240 (A), the Environmental Quality Incentive Program (EQIP) program provides funding support through contracts with eligible producers to obtain services of certified TSPs for development of CCPI Nutrient Management Plans.

B. CCPI Nutrient Management Specific Element Criteria

The Nutrient Management Plan shall include, but not be limited to, the following components:

1. Background and Site Information
 - a. Name of owner/operator;
 - b. Farm location and mailing address;
 - c. Soil map units;
 - d. Conservation plan map;
 - e. Tract and Field names or codes;
 - f. List of crops grown on the parcel, with acreage for each crop
 - g. Description of resource concerns related Soil Condition, Soil Erosion (wind and water), Air and Water Quality, and other local concerns as appropriate.

2. Land Treatment

Land Treatment shall address the need for and implementation of appropriate conservation practices for fields included in the plan. On fields where nutrients (manure, organic by-products and or commercial fertilizer) are applied, it is essential that runoff and soil erosion is limited to the soil loss tolerance (T), and that plant uptake of applied nutrients is maximized to minimize nutrient losses from leaching, runoff and volatilization. Therefore, the planner must develop a conservation system to decrease soil erosion, leaching, runoff and volatilization in accordance with Field Office Technical Guide, Section III, Quality Criteria.

Include the following elements in the plan.

- a. GIS Map(s) documenting fields and conservation practices:
 - Aerial maps of land application areas including soil maps;
 - Fields delineated to show setbacks, buffers, waterways, conservation practices planned or other site specific features important to soil condition and nutrient management planning (risers, inlets, wells);
 - Identification of sensitive areas such as sinkholes, streams, springs, lakes, ponds, wells, gullies, and drinking water sources; and
 - Other site information features of significance, such as property boundaries or occupied dwellings.
- b. For land treatment conservation practices planned or applied to meet Quality Criteria for Soil Condition, Soil Erosion, and Air and Water Quality, include the practice narrative and the Operation & Maintenance requirements for each practice. Design specifications (job sheets, engineering plans) and information associated with planning and implementation of the included conservation practices shall be maintained.
- c. To achieve the desired soil condition, soil erosion, and air and water quality improvements on land treatment areas, adjacent fields may also require conservation treatments.
- d. Planning and implementation of Conservation Crop Rotation, 328, to Improve Soil Quality, is required. To increase crop diversity, the planned cropping sequence should include different crop types such as warm season grass, warm season broadleaf, cool season grass and cool season broadleaf. Planning and application of a Cover Crop, 340, can also increase crop diversity.
- e. Planning and implementation of one of the following Residue and Tillage Management practices is required for each crop field included in the plan. Practice documentation must indicate an upward trend in the current approved Soil Conditioning Index (SCI) by decreasing the Soil Erosion Subfactor, increasing the Soil Organic Matter Subfactor and decreasing the Soil Tillage Intensity Rating (STIR) for each field and planned cropping sequence.

Residue and Tillage Management, No Till/Strip Till/Direct Seed (329), planned to meet Additional Criteria to Improve Soil Organic Matter Content

Residue and Tillage Management, Mulch Till (345), planned to meet Additional Criteria to Maintain or Improve Soil Quality

Residue and Tillage Management, Ridge Till (346), planned to meet Additional Criteria to Maintain or Improve Soil Quality

- f. For irrigated sites, planning and application of Irrigation Water management, 449, is required to manage applied nutrients and organic amendments.
- g. For irrigated sites, maintain or decrease mean annual consumptive use relative to the historic consumptive use for crops grown on site. Document crop specific consumptive use in an Irrigation Water Management (449) Job Sheet 1.
- h. For irrigated sites, if irrigation water and or soil salinity concentration or toxicity can limit desirable plant growth, plan and implement Saline and Sodic Soil Management (610) to determine appropriate management activities.
- i. If it is determined that negative impacts to Air Quality resource concerns arise from existing or planned land treatment activities identified in the plan, then air quality impact mitigation is required in the nutrient plan.

3. Nutrient Management

Nutrient Management plans shall meet planning criteria included in the current CO Nutrient Management (590) standard, and address the use and management of all nutrients applied on cropland, hayland, or pastureland including manure, compost, biosolids, wastewater, effluents, commercial fertilizers, crop residues, legume credits, irrigation water nitrates, and other organic by-products, as applicable.

- a. Some data necessary to develop a nutrient plan will come from chemical analyses of soils, plant tissues, manures, composts, irrigation water and bio-solids. Soil test analyses shall be performed by laboratories successfully meeting the requirements and performance standards of the North American Proficiency Testing Program (NAPT) <http://www.naptprogram.org/about/participants> under the auspices of the Soil Science Society of America.
- b. Credit nutrients from biosolids when applied to fields included in the plan. Biosolids (sewage sludge) applications are regulated by the U.S. Environmental Protection Agency (EPA) (40 C.F.R. Parts 403 Pretreatment and 503 Biosolids) and the Colorado Department of Public Health and Environment. Calculate biosolids Plant Available Nitrogen (PAN) using the current CO NRCS 590 Job Sheet.
- c. Nutrient Management plans shall include all proposed applications of manure and other nutrients to meet 590 planning criteria. This includes all fields that may receive manures, composts or other organic by-products. The plans and specifications shall include the following information.
 - Field information—identify Tract and Field numbers, total acres and spreadable acres, planned crop and year, previous crop, and realistic yield goals. Identify any required setbacks for each field on the plan map, as applicable.
 - Soil test and irrigation water analyses—attach copies of soil test and irrigation water analyses for each field, to corresponding 590 Job Sheets. Evaluate irrigation water for nitrates and salinity.
 - Manure and other organic nutrient analysis—attach copies of annual manure and other organic nutrient analyses to corresponding 590 Job Sheets
 - Fertility recommendations—Complete fertility recommendations including timing, rates, sources and methods of application in a current CO NRCS 590 Job Sheet, for each field included in the plan. Provide applicable CSU Extension fertility recommendation references in the Additional Recommendations section of the CO 590 Job Sheet.

- Manure and organic amendment applications—provide a summary table of planned and applied manure and organic amendment applications including fields, timing, amounts, plant available nutrients and application methods.
- Field nutrient balance—complete the Check Out section of the CO NRCS 590 Job Sheet for each field and year included in the plan.

C. Essential and Facilitating Conservation Practices

The Nutrient Management Plan shall address identified resource concerns identified and the conservation practices needed to comprise a Resource Management System. Document the planned conservation practices, the site specific specifications for the practice, the amount to be applied, and schedule of application.

Essential practices for Crop systems include the following.

Conservation Crop Rotation (328)

Integrated Pest Management (595) - essential if unmitigated pest suppression activities can negatively affect identified resources

Irrigation Water Management (449) - essential if irrigated

Nutrient Management (590) - essential if soil amendments and or nutrients, organic and or inorganic, are applied

Residue and Tillage Management (329), (345) or (346)

Salinity and Sodic Soil Management (610) - essential if soil and or irrigation water salt concentrations or toxicity can limit desirable plant growth

Essential practices for Hay and Pasture systems include the following.

Forage Harvest Management (511) - essential if hayed

Integrated Pest Management (595) - essential if unmitigated pest suppression activities can negatively affect identified resources

Irrigation Water Management (449) - essential if irrigated

Nutrient Management (590) - essential if soil amendments and or nutrients, organic and or inorganic, are applied

Prescribed Grazing (528) - essential if grazed

Salinity and Sodic Soil Management (610) - essential if soil and or irrigation water salt concentrations or toxicity can limit desirable plant growth

Facilitating Practices may be essential practices based on site-specific resource concerns. All conservation practices included in the CO NRCS Field Office Technical Guide, Section IV, are facilitating practices for the development of conservation systems

(<http://efotg.sc.egov.usda.gov/toc.aspx?CatID=1508>)

D. References

- USDA NRCS National Agronomy Manual, Parts 507 and 503C <http://directives.sc.egov.usda.gov/viewerFS.aspx?hid=29606>
- NEH-652, National Irrigation Guide plus Colorado amendments as found in eDirectives <http://directives.sc.egov.usda.gov/viewerFS.aspx?hid=21431> <http://directives.sc.egov.usda.gov/viewerFS.aspx?hid=27163>
- General Manual, Title 190, Part 402, Nutrient Management <http://directives.sc.egov.usda.gov/viewerFS.aspx?hid=27119>
- Colorado electronic Field Office Technical Guide http://efotg.sc.egov.usda.gov/efotg_locator.aspx?Map=CO

3. Deliverables for the Client – a hardcopy of the plan that includes:

- Cover page – name, address, phone of client and TSP; Total Acres of the Plan, signature blocks for the TSP, producer, and a signature block for the NRCS acceptance.
- Soils map and appropriate soil descriptions
- Resource assessment results (*Soil Condition, Soil Erosion, Air and Water Quality, Water Quantity, Plant Condition, and or others based on local resource concerns*)
- For management practices. The planned practices and site-specific specifications, how and when the practice will be applied, and the extent (acres or number) that will be applied.
- For engineering/structural practices. The planned practice when it will be applied and extent, and located on the conservation plan map.
- The following nutrient management conservation practice (code 590) requirements:
 - Field information;
 - Manure application setback distances;
 - Soil test data;
 - Manure nutrient analyses;
 - Planned crops and fertilizer recommendations;
 - Manure application planning calendar;
 - Planned nutrient applications;
 - Field nutrient balance;
 - Manure inventory annual summary;
 - Fertilizer material annual summary; and
 - Farm nutrient balance.

4. Deliverables for NRCS Field Office:

- Complete Hardcopy and Electronic copy of the client's plan (MSWord copy)
- Digital Conservation Plan Map with fields, features, and structural practices located
- Digital Soils Map